The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 144, No. 13 CHICAGO, ILLINOIS NOVEMBER 25, 1950

Copyright, 1950, by American Medical Association

SURGERY OF STENOTIC VALVULAR DISEASE OF THE HEART

ROBERT P. GLOVER, M D.
CHARLES P. BAILEY, M D.
and
THOMAS J. E O'NEILL, M D
Philadelphia

The past decade has seen the development of cardiac surgery assume a position of major importance, to climax a half century of far-reaching surgical achievement For the most part, however, this surgery has been cardiovascular in nature and has been directed at the great vessels in close proximity to the heart (patent ductus arteriosus, coarctation of the aorta and anomalies of the aortic arch). Even when the vascular defects lay within the confines of the cardiac chambers (tetralogy of Fallot or mitral stenosis), newly developed familiarity with vascular anastomoses and an inborn dread of violating the sanctity of the heart itself suggested that indirect relief by vascular shunts might offer the most reasonable and effective solution, The brilliant successes of Gross,[1] Crafoord and Nylin,[2] Blalock[3] and Sweet[4] have been epochal in this regard, and their contributions cannot be overestimated.

Concomitantly with these essentially extracardiac developments, however, Smithy,[5] Harken and others,[6] Brock,[7] Murray, Wilkinson and McKenzie,[8] we ourselves[9] and others have been concerned with the development of intracardiac procedures designed for the relief of valvular disease and have focused attention on the direct cardiac approach; in so doing we have reaffirmed the right of cardiac surgery as a definitive entity.

Lest one be tempted to suspect that the conception of cardiac surgery is of recent origin one has but to review the pioneer efforts of Rehn,[10] who successfully sutured a heart wound in 1897, Doyen[11] (1913), Tuffier[12] (1913), Allen and Graham[13] (1922), Souttar[14] (1925), Pribram[15] (1926), Cutler and Beck[16] (1929) and many others to appreciate that "true cardiac" surgery, initially handicapped by the immature state of surgical technic and anesthetic methods, nevertheless had its inception in the minds and actions of surgeons before many of us entertained the thought of embracing surgery as a specialty. Should valvular surgery of the heart in particular and intracardiac surgery in general become practical, and they have shown every indication of becoming just that, these men deserve a great measure of acclaim for their foresight; their contributions must not be forgotten in the enthusiasm of a presumably new and rapidly developing field

It is logical that valvular disease of the heart should be among the first of the intracardiac disorders to be subjected to surgical consideration. It is common and found universally. Although the effects of rheumatic disease on the mitral and aortic valves make the acquired variety by far the commonest of all valvular defects, congenital stenosis of the pulmonary valve and conus as it occurs in the tetralogy of Fallot has received the greater attention to date due primarily to the ingenious systemic-pulmonary shunt devised by Blalock and Taussig.[17] As is well known, such an extracardiac shunt essentially by-passes the intracardiac pulmonary obstruction, redirecting mixed venous-arterial aortic blood into the pulmonary vascular bed where its oxygenation effectively relieves the clinical

---

The work on mitral stenosis was partially aided by United States Public Health Grant H394

From the Thoracic Surgical Services of the Hahnemann Medical College and Hospital, Episcopal Hospital, St Christopher's Hospital for Children, Philadelphia, St Michael's Hospital, Newark, N J, and the Thoracic Surgical Research Laboratories, Hahnemann Medical College

[1] Gross, R E: Surgical Treatment for Abnormalities of the Heart and Great Vessels, ed 2, Springfield, Ill, Charles C Thomas, Publisher, 1950

[2] Crafoord, C, and Nylin, G · Congenital Coarctation of the Aorta and Its Surgical Treatment, J Thoracic Surg **14:** 347, 1945

[3] Blalock, A Physiopathology and Surgical Treatment of Congenital Cardiovascular Defects, Bull New York Acad Med **22:** 57, 1946

[4] Sweet, R H, and Bland, E F Surgical Relief of Congestion in the Pulmonary Circulation in Cases of Severe Mitral Stenosis, Ann Surg **130:** 384, 1949

[5] Smithy, H G An Approach to the Surgical Treatment of Chronic Valvular Disease of the Heart, read before the Sixteenth Annual Assembly, Southeastern Surgical Congress, Hollywood, Fla, April 5 8 1948

[6] Harken, D E, Ellis, L B, Ware, P F, and Norman, L R Surgical Treatment of Mitral Stenosis, New England J Med **239:** 801, 1948

[7] Brock, R C Pulmonary Valvulotomy for Relief of Congenital Pulmonary Stenosis, Brit M J **1:** 1121, 1948

[8] Murray, G, Wilkinson, F. R, and McKenzie, R Reconstruction of the Valves of the Heart, Canad M A J **38:** 317, 1938

[9] (*a*) Bailey, C P The Surgical Treatment of Mitral Stenosis (Mitral Commissurotomy), Dis of Chest **15:** 377, 1949 (*b*) Bailey, C P, Glover, R P, and O'Neill, T J L *The Surgery of Mitral Stenosis*, J Thoracic Surg **19:** 16, 1950 (*c*) Glover, R P, O'Neill, T J E, and Bailey, C P Commissurotomy for Mitral Stenosis, Circulation **1:** 329, 1950, (*d*) Mitral Stenosis Its Surgical Treatment by Commissurotomy, Pennsylvania M J **53:** 375, 1950 (*e*) Bailey, C P Glover, R P, O'Neill, T J E, and Redondo Ramirez, H P Experimental Attempts at the Surgical Relief of Aortic Stenosis· Preliminary Report, read before the Thirtieth Annual Meeting, American Association for Thoracic Surgery, Denver, April 15 18, 1950 (*f*) O'Neill, T J E, Glover, R P, and Bailey, C P Commissurotomy for Mitral Stenosis, J Internat Coll Surg **13:** 355, 1950 O'Neill, T J E, Glover, R P, Bailey, C P, and Redondo Ramirez, H P Further Experiences with the Surgical Treatment of Mitral Stenosis by Commissurotomy A Progress Report, read before the Thirtieth Annual Meeting, American Association *for Thoracic Surgery, Denver, April 15 18, 1950, to be published* (*g*) Downing, D, Bailey, C P, and Glover, R P The Brock Procedure for the Relief of Pulmonary Stenosis in Tetralogy of Fallot, to be published

[10] Rehn, L Suturing of Penetrating Wounds of the Heart, Ann Surg **28:** 669, 1898

[11] Doyen, E Chirurgie des malformations congenitales ou acquises du cœur, Presse med **21:** 860, 1913

[12] Tuffier, T Etat actuel de la chirurgie intrathoracique, Tr Internat Cong Med **11:** 249 and 326, 1913 1914

[13] Allen, D S, and Graham, E A Intracardiac Surgery A New Method, J A M A **79:** 1028 (Sept 23) 1922

[14] Souttar, P W Surgical Treatment of Mitral Stenosis, Brit M J **2:** 603, 1925

[15] Pribram, B O A Die operative Behandlung der Mitralstenose, Arch f klin Chir **142:** 458, 1926

[16] Cutler, E C, and Beck, C S Present Status of Surgical Procedures in *Chronic Valvular Disease of the Heart Final Report of All* Surgical Cases, Arch Surg **18**(pt 2): 403 (Jan) 1929

[17] Blalock, A, and Taussig, H B Surgical Treatment of Malformations of Heart in Which There Is Pulmonary Stenosis or Pulmonary Atresia J A M A **128:** 189 (May 19) 1945

signs and symptoms manifested by the highly publicized "blue baby." Thus an additional (fifth) defect has been added to four already present in the tetralogy of Fallot, albeit one which in large measure overcomes the immediate and obvious effects of the condition under consideration. Nevertheless, a "patent ductus arteriosus" has been created, a defect which were it to be found in existence alone would demand early surgical correction. The late effects of such an arteriovenous fistula on the heart and circulation are well known, and although the interventricular septal defect in the tetralogy may conceivably counteract in some measure the deleterious late effects of an artificially produced ductus, there is certainly cause for real concern as to the eventual fate of a patient with such dangerous anomalies.

Without detracting in the least from the brilliant results achieved by the Blalock operation (subclavian artery–pulmonary artery anastomosis) or from its clever modification, the Potts operation[18] (direct aorta–pulmonary artery anastomosis), it would seem entirely reasonable to attempt direct relief of the pulmonary obstruction, thereby reducing (and not increasing) the number of defects with which the patient must contend. In order to effectively accomplish such an obviously desirable feat it is essential to thoroughly understand the nature of the obstruction in the pulmonary channel and to have perfected means of rapid, safe and efficient correction of this obstruction. Initial results of a direct surgical approach must be comparable to those already obtained by shunt procedures, and the prospect that the patient will have a more nearly permanent relief and a more certain future after undergoing operation by the direct method must at least theoretically outweigh present doubt which exists concerning the eventual physical havoc that may result from the presence of such a surgically-produced shunt.

CONGENITAL VALVULAR DISEASE

Pulmonary Stenosis.—Although a large number of cyanotic patients with various types of pulmonary obstruction have been studied clinically and treated surgically, there are few detailed data available as to the relative incidence of the individual anatomic variances which may be present within the right ventricular outflow tract or at the root of the pulmonary artery. It is well known, however, that pulmonary valvular stenosis may exist as a single defect or be found in association with any combination of intracardiac anomalies, particularly those designated by the term tetralogy of Fallot (pulmonary stenosis, overriding aorta, interventricular septal defect and hypertrophy of the right ventricle). To further complicate this picture the pulmonary stenosis component frequently may not be strictly valvular but rather infundibular, i. e., a muscular hypertrophy or fibrous malformation of the ventricular myocardium proximal to the pulmonary valve. As a result of this somewhat confused pathological pattern, it has been considered impractical to attempt definitive anatomic diagnosis of the type of pulmonary block but to be content with the compilation of functional or physiological data merely to confirm the presence of such an obstruction. Thus, for several years the demonstration of a greatly diminished pulmonary blood flow in a cyanotic child has called for the surgical production of a systemic-pulmonary shunt regardless of the type of obstruction.

Mindful of the aforementioned objections to the creation of such a shunt, Brock[7] devoted considerable energy to a study of the pulmonary artery-conus segment in cyanotic heart disease in the hope that clarification might lead to a direct and logical surgical approach. His findings and subsequent conclusions are brilliant examples of the basic role played by exacting pathological observation in the development of any new surgical procedure. He has described the following variations: (1) pure valvular stenosis; (2) a high degree of pulmonary artery hypoplasia with a bicuspid valve and stenosis lying immediately subvalvular in a narrow muscular channel; (3) a high infundibular stenosis proximal to a relatively normal pulmonary artery and valve (the commonest type), and (4) a low infundibular stenosis, at varying levels, creating a small or large infundibular chamber (third ventricle) proximal to a normal pulmonary artery and valve. The wall of this chamber may be either thin and fibrous or muscular in nature (fig. 1).

As a result of these observations, Brock[7] in 1948 reported a new type of operation for the relief of congenital pulmonary stenosis. It is true that Doyen had previously attempted direct division of what was thought to be a stenosed pulmonary valve in 1913, but nothing further developed from this original effort. Inasmuch as pulmonary stenosis may be valvular or infundibular, two procedures were devised:

1. For relief of valvular stenosis entry is made through the right ventricle 3 cm. proximal to the valve. A small probe is inserted through the incision and passed into the mouth of the pulmonary artery to gage the position and degree of stenosis. A specially designed, flat, cobra-shaped knife with sharp cutting edges converging into a small noncutting rounded tip is guided into the fused valve cone, engaged through the tiny pinhole orifice and gently thrust onward into the pulmonary artery (fig. 2 *B*). The valve is thus divided into two equal cusps, one anterior and one posterior, which can open and close in response to changes in systolic and diastolic ventricular pressures. The knife is removed, a dilating sound or one's little finger is introduced through the opened valve to insure adequate separation of the newly formed cusps.

2. Should direct observation and palpation of the right ventricle and pulmonary artery at the time of surgical intervention suggest the presence of an infundibular type of obstruction, an alternative procedure is used. The ventricular chamber is entered either proximal or distal to the obstructing septum, and by means of a backward-cutting punch a collar of tissue is excised; this greatly enlarges the diameter of the outflow channel, allowing the venous blood stream to pass normally through the adequate pulmonary valve, artery and bed (fig. 2 *A*). In either case the ventricular incision is closed by using three or four interrupted sutures of strong vascular silk.

By 1949 Brock[19] was able to report that five cases of congenital pulmonary stenosis had been successfully treated by using the foregoing technic. Since that time he has operated on a much larger number of patients, both in this country in collaboration with Blalock and in England, with excellent results.

In December 1949, after prolonged deliberation and because of considerable experience obtained during the development of mitral valve surgery, we followed the suggestions of Brock and embarked on a course of direct pulmonary attack for routine cases of tetralogy of Fallot. Eight operations have been performed to date. Much to our surprise, a valvular stenosis was present in four of the eight patients, a much higher incidence than has been presumed to occur in this combination of defects. The ages ranged from 3½ years to 18, the fused valve cones were divided with strict adherence to the technic outlined above without undue incident, and in each instance the preoperative cyanosis has disappeared. In three patients the improvement in exercise tolerance has been striking, and the fourth patient has shown decided improvement but the operation was too recent to permit more adequate evaluation. Preoperative compensatory polycythemia has disappeared, peripheral arterial oxygen saturations have been greatly elevated in those so examined, and the low, directly measured pressures within the pulmonary artery before valvular division have risen to within normal range at the termination of the procedure (table 1).

---

[18] Potts, W. J., and Gibson, S.: Aortic Pulmonary Anastomosis in Congenital Pulmonary Stenosis: Report of 45 Cases, J. A. M. A. **137**: 343 (May 22) 1948.

[19] Brock, R. C.: The Surgery of Pulmonary Stenosis, Brit. M. J. **2**: 399, 1949.

In the four remaining cases the stenosis was infundibular, of the type shown in figure 1 *C*. Although in each instance the high location of the stenosis was suspected, the incision in the myocardium was inadvertently made directly over the infundibular septum, making the use of the Brock backward-cutting punch impossible. In the first of these infundibular cases (case 5) the condition of the patient at this point was so critical that digital and instrumental dilatation to forcibly enlarge the channel was all that could rapidly be accomplished so that the procedure could be terminated. Although there was no reason to believe that the child would survive the operation after a stormy postoperative convalescence his improvement has been progressive, cyanosis has disappeared except with excessive exercise and the parents are delighted with the degree of normality which has been unexpectedly achieved. As a result of this experience, when the same problems were confronted in the ensuing three cases we were prepared with a small sharp bone rongeur with which a segment of septal tissue about 1.8 cm. (the size of a dime) was removed through the opening in the myocardium, an opening which extended vertically above and below the underlying septal ridge and at right angles to it (fig. 2 *C*). Each of these patients improved rapidly after operation. Cyanosis disappeared (immediately in one, within a few days in a second and after ten days in the third), and they have been discharged with decided improvement in their exercise tolerance.

Table 1.—*Type of Stenosis and Surgical Result in Patients with Tetralogy of Fallot*

Case		Age (Yr.)	Type	Pulmonary Artery Pressure Before	After
1	M. B.	3½	Valvular	11	30.8 (mm. Hg)
2	H. C.	12½	Valvular	2	33.6 (mm. Hg)
3	R. B.	7	Valvular	Not taken	
4	M. R.	18	Valvular	2	48 (cm. H₂O)
5	K. K.	3	Infundibular	Not taken	
6	D. J.	4	Infundibular	Not taken	
7	L. F.	3	Infundibular	[illegible]	31.5 (cm. H₂O)
8	A. S.	21	Infundibular	Not taken	

Although it is obviously too early to draw any conclusions from this small series of cases (the longest postoperative observation is six months), certain generalizations are apparent. The direct ventricular approach to congenital pulmonary stenosis is entirely feasible. With application and a certain dispatch on the part of the operator, it can be done with a low mortality. There were no deaths in this series. The immediate and early results have been excellent, and without doubt our results have equalled and even surpassed those we obtained by the shunt procedures. It is mandatory, however, that enthusiasm for a new procedure be tempered by a consideration of the possible late complications which might arise to confound the enthusiast. A number of questions are unanswerable at present and must await the passage of time and further careful evaluation.

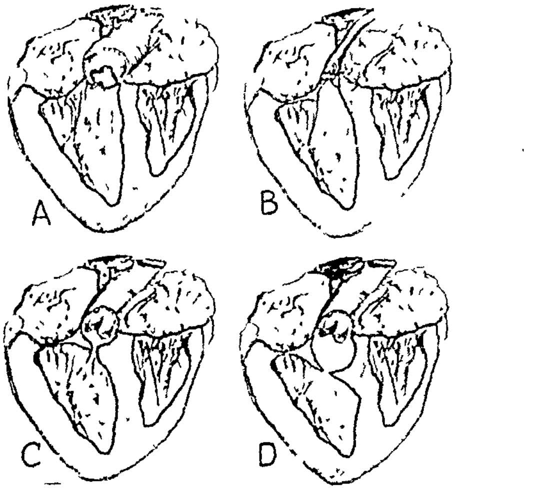


Fig 1—Types of pulmonary obstruction encountered in the tetralogy of Fallot: *A*, pure valvular stenosis; *B*, pulmonary artery hypoplasia with biscupid valve and subvalvular stenosis; *C*, high infundibular stenosis with normal valve, and *D*, low infundibular stenosis with normal valve The other pathological components of the tetralogy of Fallot are not shown (*B*, *C* and *D*)

Does the direct division of a fused pulmonary valve by the method described produce appreciable regurgitation, and will the bicuspid nature of the cusps withstand the rigors of the continued and increasing ventricular output? Will such a valve be subject to the eventual deposition of bacterial thrombi as in subacute bacterial endocarditis? Will the newly formed cusps eventually fuse or the infundibular channel fibrose and contract? There are no data available to satisfactorily answer these obvious and most pertinent queries. Experiences with a somewhat similar type of procedure—in mitral stenosis—with a two and one-half year period of observation have shown that if early regurgitation is not appreciable its late development need not be feared; bicuspid valves can withstand much higher vascular pressures than are present in the right side of the heart; divided cusps which are constantly in action show little tendency to agglutinate in the absence of either insidious (rheumatic) or apparent infection when kept open by an almost constant vascular stream. The infundibular channel should not close for the same reasons provided an adequate amount of tissue has been

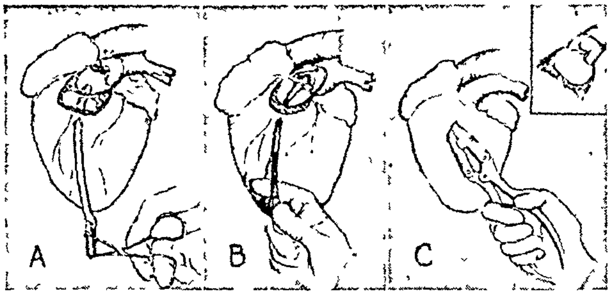


Fig 2.—Methods for direct surgical relief of pulmonary obstruction in the tetralogy of Fallot *A*, Brock punch in infundibular stenosis, *B*, Brock knife in valvular stenosis, and *C*, Glover rongeur in infundibular stenosis.

removed No one can even postulate the probable incidence of superimposed bacterial infection. Suffice it to say that when one has the means to directly relieve congenital pulmonary stenosis and thereby not only to provide a more normal circulation but by such surgery to minimize or directly counteract in great measure the presence of the associated interventricular septal defect and overriding aorta, such possibilities must be explored to the uttermost. This is preferable to placing complete reliance on an added shunt, which at best is contrary to the very nature of the vascular system it is designed to improve. Complete data on cases briefly described herein are given elsewhere.[20]

ACQUIRED VALVULAR DISEASE

In the near future by far the greatest field of intracardiac surgical endeavor will be concerned with the problems of acquired rather than congenital disease, a mirror image of conditions as they exist today. White [21] has estimated that 0.5 to 1 per cent of the community at large is affected by valvular disease, particularly in those areas where rheumatic fever is endemic, as in the northeastern part of the United States and northern Europe. In the great majority of persons afflicted with rheumatic heart disease (up to 85 per cent) there develops some degree of deforming valvular damage, the mitral and aortic valves being the commonest sites of involvement. Structural stenosis of these valves is the most serious result of rheumatic infection. It is little wonder, therefore, since stenosis is essentially a mechanical stricture, that surgical intervention should be considered as offering the ideal therapeutic approach provided it can be accomplished with relative safety and without the production of deleterious side effects.

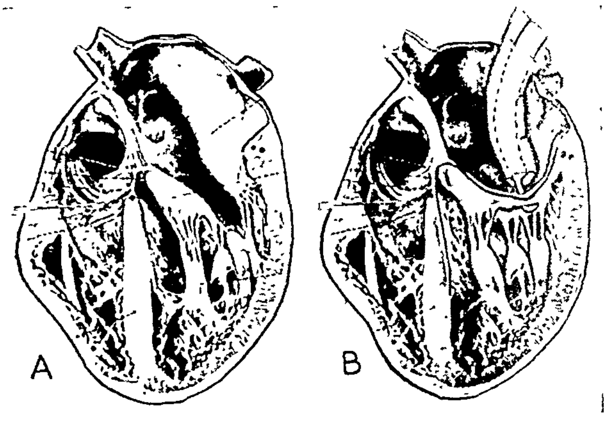


Fig. 3.—Sagittal sections through the heart showing the normal mitral valve (*A*) and diagrammatically the mitral valve in stenosis (*B*). The right index finger bearing the commissurotomy knife has been inserted through the left auricular appendage and the hooked blade engaged on the lateral commissure.

Mitral Stenosis.—The prognosis of an individual case of mitral stenosis depends on many factors: the age of the patient; the severity of the lesion; the presence or absence of other valve defects; the presence or absence of additional rheumatic activity, and the condition of the myocardium. The ultimate outcome, however, is almost invariably unfavorable once the stenotic change gives rise to a progressive pattern. When the diagnosis of early mitral stenosis has been established, the cardiologist can picture and predict with considerable accuracy by both repeated physical examination and observance of the patient's general condition, the structural and symptomatic phases through which a given patient will pass. Treatment by the cardiologist will at once be directed toward the prevention of further rheumatic insults and the support of a myocardium which is vainly attempting to maintain an adequate systemic circulation in the face of an increasing mechanical structure. In such circumstances both the cardiologist and the myocardium are fighting a losing battle. Doubtless just such reasoning prompted Sir Lauder Brunton [22] as early as 1902 to conclude that direct surgical incision of the stenotic valve provided the only logical method of interrupting the relentless chain of events in progressive mitral stenosis. Support of the myocardium by intelligent therapy has offered the only approach to date, but it is treatment of the effects of disease rather than alleviation of its mechanical cause. The ideal approach would be the elimination of the causative agent, rheumatic fever. Failing this, however, the correction of its disastrous cicatricial end result seems most logical.

Since the first section of the mitral ring by Cutler and Levine [23] in 1923 there have been a number of direct attacks on the stenotic mitral valve. The approach and the methods employed have varied. The left auricular appendage,[24] the left ventricle [25] and the left pulmonary vein [6] have been used as sites of entrance. Methods of dealing surgically with the valve have included simple incision of a valve cusp, excision of a portion of the mitral ring, digital dilatation of the stenotic orifice and valvuloplasty designed to resect portions of the valve ring at the commissures of the valve. A complete discussion of the merits and disadvantages of these many approaches and methods has been presented elsewhere.[9b, c] In summary, use of the left auricular appendage as the avenue of approach to the mitral valve is far superior to any other technic. Further, the aforementioned methods of valvular attack were based on the premise that the only hope of relieving the effects of mitral stenosis was to replace it by a regurgitant type of lesion. That this concept was erroneous has been shown repeatedly both in the experimental laboratory [26] and clinically, and to this concept we are unequivocally opposed. Of the approximately 24 patients so treated and recorded in the literature, 14 died promptly and the early survivors were so little improved that the majority succumbed in a relatively short time from their suddenly produced mitral regurgitation—a lesion equally as serious as the original stenosis, at least when produced surgically. We have employed the procedure of commissurotomy—a method in which the individual anatomic valve leaflets are surgically separated—to restore a considerable degree of valve function without the production of additional significant regurgitation. For a complete understanding of the basic principles underlying this surgical maneuver it is necessary to consider briefly the anatomic, pathological, and physiological aspects of the mitral valve as it appears normally and in its diseased state.

---

[20] Glover, R. P.; Wells, R. C., and McAuliffe, T.: A Modification of the Brock Procedure for the Relief of Infundibular Stenosis in Tetralogy of Fallot, to be published. Downing, Bailey and Glover.[9g]

[21] White, P. D.: Chronic Valvular Disease in Cecil, R. L.: A Textbook of Medicine, ed. 4, Philadelphia, W. B. Saunders Company, 1937, p. 1107.

[22] Brunton, L.: Preliminary Note on the Possibility of Treating Mitral Stenosis by Surgical Methods, Lancet **1:** 352, 1902.

[23] Cutler, E. C., and Levine, S. A.: Cardiotomy and Valvulotomy for Mitral Stenosis: Experimental Observations and Clinical Notes Concerning an Operated Case with Recovery, Boston M. & S. J. **188:** 1023, 1923.

[24] Allen and Graham.[13] Souttar.[14]

[25] Cutler, E. C.; Levine, S. A., and Beck, C. S.: The Surgical Treatment of Mitral Stenosis: Experimental and Clinical Studies, Arch. Surg. **9**(pt. 2): 689 (Nov.) 1924. Smithy.[5] Pribram.[15]

[26] Powers, J. H.: Experimental Production of Mitral Stenosis, Arch. Surg. **18:** 1945, (April) 1929; Experimental Cardiac Valvular Disease in Dogs, and Subacute and Chronic Cardiac Valvular Disease in Man: Comparative Pathologic Study, ibid. **21:** 1 (July) 1930; Surgical Treatment of Mitral Stenosis: Experimental Study, ibid. **25:** 555 (Sept.) 1932. Cutler and Beck.[16]

The normal mitral valve may be likened to a truncated cone of thin, flexible membrane. Its base is attached at the left atrioventricular ring, and its apex extends into the left ventricle. The apex and the outer surface of the apical half of this cone are suspended by numerous guy wires (chordae tendineae) attached to papillary muscles arising from the ventricular wall near the ventricular apex. The chordae tendineae are grouped more heavily in two areas of the mitral apex, at either side. These areas represent both the anatomic fusion of the two components of the valve (an anteromedial and a posterolateral leaf) and the corners of the apex on which the leaves fold themselves (fig. 3 *A*). When modified by rheumatic disease, these points of folding become the "commissures." The plane of flattening is oblique (with the patient in the supine position), running from the left anterolateral portion of the valve posteromedially. The anterior or anteromedial valve cusp is larger than the posterolateral; it is continuous with the posterior portion of the intracardiac aortic wall. During auricular systole the posterior or posterolateral cusp lies well away from the ventricular wall. During ventricular systole the ventricular wall may approximate and support it. Thus mitral regurgitation is primarily a defect or dysfunction of the anteromedial valve cusp. A defect of the posterolateral cusp produces limited regurgitation rather than an uncontrolled reflux of blood, as seen when a defect in the continuity of the anteromedial cusp prevents normal deflection of the ventricular output into the intracardiac aorta. The papillary muscles contract synchronously with the ventricle, drawing the chordae tendineae taut, thus preventing the valve leaflets from becoming inverted or displaced backward into the auricle.

In rheumatic disease the mitral valve develops numerous minute cauliflower-like vegetations (1 to 2 mm in diameter) in a row along the line of closure of the valve. Healing leads to the formation of scar tissue. With repeated infection and healing there is gradual development of fibrosis, thickening, and narrowing and shortening of the apical portion of the valve cone. This scarring and narrowing may be very limited in extent and may resemble merely a purse-string puckering of the valve orifice. In other instances the disease involves one fourth to three fourths of the cone, leaving a flexible margin along its base (fig. 4). In far-advanced disease the whole valve becomes a rigid, completely inflexible, often calcified structure resembling a hard, ovoid plaque surrounding a small fish-mouth slit. Most physicians, and even many pathologists, think of such extreme deformity as classic and the rule in mitral stenosis. We have found this condition in only five of our 50 cases.

Usually mitral rheumatic disease hardens or fixes the apex of the mitral cone in the infolded or flattened position so that the commissures become an anatomic reality. Thus stenosis is produced, offering pronounced resistance to the passage of blood from the left auricle into the left ventricle. Some degree of regurgitation through the mitral slit during ventricular contraction is common. Not infrequently mitral rheumatic disease hardens and shortens the valve cone to a point where the leaves cannot be approximated. Such cases of predominant mitral regurgitation are less common than those predominantly stenotic and at the present time are not amenable to surgical correction.

Mitral stenosis of any degree interferes with the filling of the left ventricle and with the maintenance of normal systemic cardiac output. Many hearts with mitral stenosis are unable to increase their output over and above resting body requirements. Any appreciable amount of work will quickly cause patients with this condition to become fatigued or dizzy and even momentarily to lose consciousness. Concurrently, since the egress of blood from the left auricle is impaired, increased pressure within and great dilatation of this chamber results. The high intra-auricular pressure is transmitted to the entire pulmonary vascular system and thence to the right ventricle (fig. 5). A chronic pulmonary hypertension ensues, with nocturnal or exertional pulmonary edema (dyspnea), rupture of pulmonary capillaries (hemoptysis) and failure of the right side of the heart (enlarged liver, ascites and peripheral edema).

Commissurotomy: As previously stated commissurotomy, a term suggested to us by Dr. Thomas Durant of Philadelphia, is the procedure we have employed to reestablish a pronounced degree of normal mitral valve function. Our present operative technic is simple and direct. It has been described in detail in previous publications.[27]

Commissurotomy consists of an operative approach through the left posterolateral chest wall with the patient in the right lateral position. The pericardium is incised longitudinally 1 cm. anterior or posterior to the phrenic nerve. The auricular appendage, usually distended but occasionally of normal size or even contracted, now protrudes from the pericardial sac. A purse-string suture of heavy braided silk is passed about the appendage at its base. A noncrushing clamp is closed over the base of the appendage, and a generous portion of its tip is amputated. Two gloves are worn on the operator's right hand. The blade of the commissurotomy guillotine knife is inserted between the gloves on the index finger (the tip of the outer glove has been removed and an opening made at the base of the index finger), and the finger is inserted into the left auricle as the clamp is released and as the purse-string suture is drawn taut about the finger. The finger is well tolerated by the auricle and causes no disturbance to the circulating blood. The valve is quickly and easily located. Its structure can readily be appreciated; the size of the orifice and the location of the commissures are determined. The knife is now protruded through the opening and the hooked blade engaged on the anterolateral commissure (fig. 3 *B*). A backward stroke with the left hand on the knife handle or approximation of the guillotine blade usually divides the commissure adequately the first time. The finger again palpates the opening and gently dilates it. If the cut in the commissure does not extend well into normal valve tissue through the fibrotic ring, another cut is made under direct digital guidance. In patients who have a rather soft valve orifice decidedly diminished in cross-sectional area, simple opening of the lateral commissure is sufficient. In patients with a rigid, fixed and sometimes calcified valve, incision of the medial commissure also may be necessary. This is accomplished by pronating the hand, engaging the medial commissure and repeating the maneuver already described.

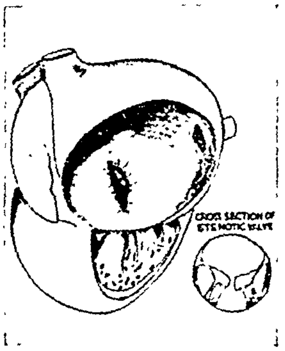


Fig. 4

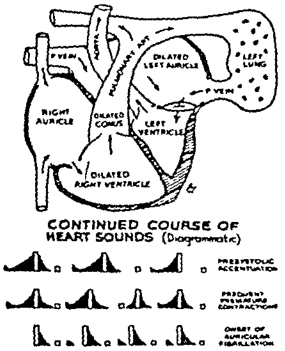


Fig. 5

Fig. 4.—Pathological conditions in late mitral stenosis. Note the decided fibrosis (possible calcific deposits) of cusp margins, extensive fusion of valve commissures, papillary muscles and chordae tendineae decidedly hypertrophied and contracted, and the pronounced dilatation of the left auricle, with early hypertrophy of the right ventricle. In the cross section of a stenotic valve note the induration along cusp margins, with the base of the valve relatively normal.

Fig. 5.—Physiological representation of cardiopulmonary vascular changes in mitral stenosis, showing the continued course of heart sounds and the progressive changes as seen in early adult life.

The finger and knife are now withdrawn from the auricle as the purse-string suture is tied securely, preventing loss of more than a few cubic centimeters of blood. The cut edge of the appendage is oversewn and the lumen of the appendage obliterated. There should be no disturbance of the systemic circulation and few, if any, circulatory irregularities throughout the procedure.

---

[27] Footnote 9b, c and d.

Such a technic has the great advantage of direct digital guidance. It should not produce any significant amount of regurgitation because a considerable measure of valve function has been restored to prevent the reflux of blood during ventricular systole. That it effectively accomplishes the desired result is shown not only by decided clinical improvement but also by objective physiological studies. An abstract of the early cases in which this technic was used has appeared in previous communications.[9a, b]

Results: Commissurotomy by the technic described has been performed in 50 cases with eight fatalities (table 2). In the first of these a modified scalpel was employed, as our present hooked knife and guillotine modifications had not been perfected. Attempts to incise the commissures were attended by repeated disengagement of the blade as it rode over the fibrotic valve, resulting in an inadequate incision extending only a few millimeters into the scar tissue. The patient died on the sixth postoperative day in pulmonary edema from unrelieved mitral stenosis. Death occurred in cases 4 and 5 at a time when the proper technic for the management of the auricular appendage was being perfected. One patient died on the eighth postoperative day from a cerebral embolus originating in the unobliterated lumen prior to the routine use of a purse-string ligature at the base of the appendage. The other succumbed within twenty-four hours from hemorrhage through the purse-string ligature (mass ligature) before the importance of simultaneous obliteration and oversewing of the cut tip of the appendage was appreciated. Since the incorporation of these two steps into our surgical routine further disasters of this kind have not occurred.

TABLE 2.—*Commissurotomy for Mitral Stenosis, Mortality June 1948 to June 1950*

Year	Number of Cases	Number of Deaths
1948	5	3 (60%)
1949	21	3 (14.2%)
1950	24	2 (8.3%)*
Total	50	8 (16%)

* One by digital fracture of obstructive tissue and not the recommended incisional commissurotomy.

The five remaining fatalities all resulted from inadvertent but improper management of the valve itself and may be attributed for the most part to the production of immediately recognizable regurgitation at the time of surgical intervention; such regurgitation may be rapidly fatal, as in cases 26 and 44, in which death occurred within three hours as a result of an extensive tear just anterior to the lateral commissure caused by digital fracture of the obstructive tissue. The usual commissurotomy incision with the guillotine could not be made because the small size of the auricular appendage would not admit both finger and knife—a rare condition. The deleterious effects of acute regurgitation may be more prolonged and may be clinically manifest by the shocklike picture of peripheral vascular collapse. In case 10 the patient succumbed after four days in such a state despite intensive treatment designed to combat the usual shock syndrome. The two remaining fatalities (cases 36 and 16) occurred after three and four weeks, respectively, from relentless and increasing cardiac failure. In case 36 tearing occurred across the posterior cusp just posterior to the lateral commissure as traction was being made. In case 16 the mitral orifice was eccentrically placed and there was no lateral commissure; this necessitated a long medial incision—a dangerous and in this instance fatal procedure. One additional patient (case 14) contracted a severe upper respiratory infection involving the paranasal sinuses initially. All known antibiotics were used without effect. Bronchopneumonia developed, and death occurred in one month from overwhelming infection. This patient had enjoyed four postoperative months of freedom from the crippling effects of her previous mitral stenosis prior to this disaster. Her case is not listed as an operative mortality. Unfortunately, permission for an autopsy was not granted.

Forty-one patients on whom commissurotomy was performed are living and well at the present time. Twenty of these are considered to have excellent results based on the clinical disappearance of all presenting symptoms in each instance, the physiological demonstration of reduced pulmonary vascular pressures in many and the reduction of left auricular and over-all heart size in the majority. Twenty-one are improved according to these criteria. Five of this group had valves so severely damaged and distorted as to be considered essentially inoperable, and little return of valve function could be obtained although the valve orifices were partially opened. Obviously extensive improvement cannot be expected in these patients and their course, initially surprisingly good, will eventually be unsatisfactory. The remaining 16 patients may well continue to improve, as sufficient time has not elapsed in most instances for maximum benefit to have been derived.

Criteria for Selection of Candidates for Commissurotomy: The indications and contraindications for commissurotomy must be considered together. Both must change as experience dictates. The following criteria for the selection of cases have been recommended by Dr. George Geckeler, chief of cardiology, Hahnemann Medical College and Hospital, whose preparation and postoperative care of these patients has contributed immeasurably to the success of this surgical venture:

Most Favorable

1. Patient below age of 40.
2. Normal sinus rhythm and a presystolic accentuation of a late mitral diastolic murmur.
3. Systolic murmur, if any, of minimal intensity.
4. Pulmonic second sound accentuated not more than 1 plus.
5. No previous hemoptysis and no previous failure.
6. A good response to exercise tolerance test.
7. Right axis deviation and no left ventricular enlargement.

Less Favorable

1. Patient below age of 45.
2. Auricular fibrillation and a midlate decrescendo diastolic murmur.
3. Pronounced left auricular enlargement with moderate right ventricular enlargement.
4. Fair response to exercise tolerence test.
5. Electrocardiogram may show some T wave change indicative of myocardial damage.
6. No history of previous failure.

Least Favorable

1. Patient below age of 50.
2. Auricular fibrillation with a late decrescendo diastolic murmur.
3. A short, not more than grade 2, rough systolic murmur.
4. Two plus accentuation of the pulmonic second sound.
5. Fair to poor response to exercise tolerance test.
6. Previous failure should have been readily controlled.
7. Embolic phenomena may have been present.

8. There should be no more than minimal mitral insufficiency as shown physiologically by pressure curves and roentgenologically by little increase in size of left ventricle.

Inoperable

1. Patient above age of 50, except in rare instances.
2. Active rheumatic state.
3. Presence of unremedial failure or gallop rhythm or recent pulmonary infarction.
4. Aortic valve involvement of significant degree.
5. Appreciable degree of left ventricular enlargement.

Comment: It may be stated that in a case otherwise suitable for mitral commissurotomy, not infrequently the presence of recent and recurring arterial embolic phenomena is an urgent indication for surgical intervention. Ligation of the left auricular appendage has completely curtailed the recurrence of such episodes in 15 cases in this series. There was but one death (unrelated to embolism) in this group, and it has been unnecessary to give patients anticoagulants at any time during the postoperative period. As previously suggested,[9b] it may well be that surgical obliteration of the auricular appendages will prove to be the proper approach to the management of systemic or pulmonary embolization in many cases of auricular fibrillation unassociated with mitral stenosis.

Long term follow-up alone can supply the ultimate answer to the effectiveness of commissurotomy. From observations over the past two and one-half years it may be stated that surgery would appear to have an increasingly prominent place in the treatment of mitral stenosis and at the present time offers the only definitive solution to the problem.

Aortic Stenosis.—Emboldened by a reasonable measure of success with the surgical alleviation of stenosis of the mitral and pulmonary valves, it was natural that attention should be turned toward their counterpart in the aortic valve. Interest in this phase of valvular surgery was initiated by the enthusiasm and efforts of the late Horace Smithy, whose untimely death resulted from the rapid devastation of the diseased valve under discussion. It became apparent at once that the lessons learned and the approaches employed in the development of previous intracardiac surgical technics could not be transposed to the aortic valve because of the latter's variances in anatomic structure and relationship to vital coronary pathways. Nevertheless, certain broad patterns for investigation suggested themselves as a result of experiences encountered in this earlier experimental and clinical phase of valvular surgery.

Pathological and Physiological Considerations: The pathological basis of aortic stenosis is varied and complex. It appears that the primary defect in the rheumatic type is an early fusion of the three valve cusp margins. The free edges of the valve cusps are thickened, rolled and eburnated (fig. 6 A, insert). They may frequently contain calcium, but even in its absence they are extremely hard and tough. The valve leaflets themselves vary greatly but invariably are thickened and in most fixed specimens appear rigid and unyielding. In extreme cases the entire aortic valve may be considered as a rigid orifice surrounded by a calcified plaque that has lost all semblance of its original tricuspid nature. The fresh specimen, however, usually reveals a considerable amount of flexibility of the cusps themselves, especially near their attachments to the aortic wall. In this respect the pathologic condition resembles that found in the average case of mitral stenosis.

The disturbed physiological condition in extreme aortic stenosis is apparently due to the slow ejection of a small amount of blood with each contraction of the left ventricle. As a result the systolic blood pressure does not reach high levels but is sustained and maintained longer than is usual. Diastolic pressures likewise are relatively high, so that the pulse pressure differential is small. Coronary flow seems reduced more by the diminished volume of blood in the aorta than it is either by pressure changes or by intrinsic disease in the coronary system. Naturally, the coronary vascular needs of the left ventricle are increased by the large bulk of musculature contracting partly isometrically against the aortic obstruction. This extra work load increases the relative inadequacy of the coronary flow and partially explains the anginal or coronary type of pain so often encountered in these cases.

Patients with uncomplicated aortic stenosis are not primarily dyspneic unless congestive failure has supervened. They become progressively disabled as their cardiac stroke output diminishes with increasing stenosis. Eventually even the slightest exertion produces dizziness and fainting. Persistence in exertional effort leads to greater discrepancy between supply and demand, both systemically and with regard to coronary flow. In all probability this may explain the frequency of sudden death after relatively moderate effort in patients with this type of lesion.

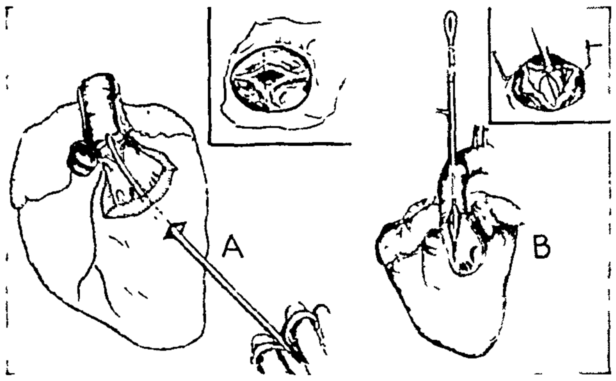


Fig. 6.—Left ventricular approach (*A*) to the aortic valve using instrument with retractable diamond shaped cutting blades. The insert depicts fusion of valve cusps in aortic stenosis and the line of incision. Cervical approach (*B*) to the aortic valve through the right common carotid artery, innominate artery and ascending aorta. The insert shows the effect of the dilating instrument.

Experimental Considerations: The approach to the problems of stenotic valvular disease in the experimental laboratory is fraught with many difficulties. The experimental animal does not have valvular stenosis, nor can a reasonable facsimile of the human pathological picture be produced by methods yet devised. Therefore animal experimentation cannot follow the usual, accepted form but resolves itself into methods of surgical technic designed either to approach the valve itself or to by-pass it by involved methods of vascular anastomosis. Study of human heart specimens obtained at autopsy is likewise unsatisfactory because they usually represent extreme states of disease—a distortion of the conditions which may exist at the time when surgical intervention could reasonably be contemplated. Further, because fixation of the tissues has destroyed certain important functional components such as mobility, bizarre conclusions are drawn

The possible surgical approaches to the problem of aortic stenosis seem to take one of the following four courses (1) replacement of the damaged valve by a section of transplanted aorta containing normal valves, (2) by-passing of the diseased valve by aortic transplants containing normal valves, (3) insertion of a mechanical valve, or (4) direct surgical attack on the stenotic valve itself The possibilities of each of the first three (indirect) methods have been extensively explored experimentally in our laboratory and by others [28] Although phases of this work are still under consideration, preliminary reports have been presented elsewhere [illegible] and will not be repeated in this publication It is sufficient to state that only occasional and unpredictable success has been attained by these experimental efforts and that the results do not warrant clinical trial at this early date Operative hemorrhage the maintenance of unobstructed coronary flow, the viability of tissue and valves so transplanted and many other problems have yet to be satisfactorily solved

Direct Valvular Approach It would seem reasonable that application of the methods successful in clinical mitral and pulmonary valve surgery might offer a ready solution Certain inherent difficulties immediately arise, however, posed primarily by the nature and anatomic position of the stenosed aortic valve It lies deep within the substance of the greatly hypertrophied left ventricle, the coronary ostiums and vessels are in close proximity, and no ready-made avenue for digital approach such as the auricular appendage is available Incision through the myocardium close to the valve in the outflow tract of the left ventricle for the introduction of the finger or instruments is followed by excessive and uncontrollable hemorrhage Similarly, approach through the aortic wall just distal to the valve is attended by the same danger However, it is altogether feasible to approach the valve at greater distance both from the ventricular and from the aortic poles as shown experimentally by Smithy and both experimentally and clinically by us

Since the pulmonary and aortic valves are similar in construction and in method of action, the thought of performing a Brock type of operation for aortic stenosis seemed attractive Therefore on March 9, 1950 at the Episcopal Hospital F B, a white woman aged 26 with extreme aortic stenosis, was subjected to surgical operation With a specially devised instrument equipped with retractable diamond-shaped cutting blades, entry into the left ventricle was made near its apex (a low pressure area as compared to the outflow tract) and the instrument guided into the stenotic valve orifice (fig 6 *A*) The retractable blades were opened and the valve was cut vertically by pulling the instrument back into the ventricle Although the wound was rapidly sutured, almost immediately the heart rate slowed and soon contractions ceased despite stimulation, rapid blood transfusion and prolonged cardiac massage Autopsy revealed that the knife had been well placed and that despite the diffuse calcareous nature of the valve it had been divided into two halves It was evident, however, that appreciable regurgitation had been produced, a condition incompatible with life when suddenly superimposed on diseased tissues Attempts to apply the technics that were successful for the pulmonary and mitral valves had failed initially, and there was no reason to suppose that persistent application of the same principles would meet with a better fate There remained the possibility of modifying the method of Tuffier,[12] who in 1914 successfully dilated the aortic valve of a young man with severe and progressive aortic stenosis By invaginating the wall of the aorta just above the valve and pushing it into the stenosis on the forefinger, he was apparently able to accomplish dilatation of the valve sufficient to bring about reversal of the progressive course of this patient's disease for as late as 1924 the patient was reported living and improved On reexamination of our specimens of aortic stenosis with the possibility of dilatation in mind, it was again noted that the free edge of the cusps of the valve appears to bear the brunt of the disease process The edge is thickened, indurated and tough, often calcified By simple forceful dilatation in the laboratory it was possible to tear open one or more of the sealed commissures without injury to the valve cusp itself Such an opening should produce little if any additional regurgitation, since the cusp as a whole will function better after mobilization True, it would be unusual for all three commissures to tear open with restoration of essentially normal valve function However, the powerful hypertrophied left ventricle, able as it is to compensate until veritably only a trickle of blood can pass the aortic barrier, will readily respond to even moderate relief of the obstruction

We therefore devised an instrument that is shaped like a large pencil with a blunt point This is inserted through an incision in the neck into the lumen of the right common carotid artery It is gently guided through the innominate artery into the ascending aorta and soon impinges on the aortic valve The valve is readily recognized both by resistance to further passage and by the direct transmission of the cardiac movements to the operator's hand through the instrument The valve orifice can readily be located, the instrument engaged within the narrowed lumen and inserted well into the ventricle (fig 6 *B*) The dilating mechanism near the tip is then gently opened by a turnscrew on the handle of the instrument, gradually dilating the cusps to or past the point of commissural separation Blood flow through the aortic orifice is maintained by a lack of continuity of the dilating surface The instrument is then closed and removed, the carotid incision is repaired by a continuous suture of arterial silk

This operation has been performed recently on two patients with multivalvular lesions, one of which was severe aortic stenosis Both patients, although far advanced in the course of their disease and in relatively poor condition, withstood the procedure well Postoperatively both presented objective evidence of enlargement of the aortic valve orifice, and both appear clinically improved Because of associated myocardial disease and coexistent mitral regurgitation, neither was considered suitable for major thoracotomy and direct attack on the heart Both patients underwent operation recently and have not reached a point at which significant conclusions can be drawn regarding the eventual effect of their valvular dilatation

SUMMARY AND CONCLUSION

Our entire experience with the surgical management of stenotic valvular disease has been reviewed The fact that pulmonary valvular and infundibular stenosis can be relieved by the direct surgical approach as devised by Brock and modified herein has been confirmed Initial results with the direct ventricular approach are at least comparable with those of earlier shunt procedures, and the prospect that the patient will have more nearly permanent relief and a more certain future after the direct approach seem to outweigh present doubt as to the eventual physical havoc that may result from the surgically produced shunts of earlier technics.

---

[28] Campbell J M An Artificial Aortic Valve J Thoracic Surg **19** 312, 1950 Hufnagel C A in the Thirty Fifth Clinical Congress American College of Surgeons Chicago Oct 17 21, 1949 Bailey and others [29]

Commissurotomy accomplishes relief of mitral stenosis by restoring a considerable degree of valve function without the production of significant mitral regurgitation. That this type of surgical intervention can be performed with a reasonably low mortality has been demonstrated. There has been no return of the stenotic state detectable clinically or physiologically in two early cases followed for a period of two and one-half years or in any more recent cases.

In aortic stenosis dilatation of the aortic valve would appear to be the surgical treatment of choice at the present time. Whether this surgical objective is best achieved from the aortic or ventricular approach is conjectural. Considerable time must elapse for evaluation of present methods.

ADDENDUM

Since this paper was submitted for publication many additional patients have been treated surgically. The total cases to date (October, 1950) include: pulmonary stenosis in tetralogy of Fallot (consecutive), 15 (six infundibular and nine valvular) with two deaths (one infundibular and one valvular); mitral stenosis, 86 (60 so far in 1950) with four deaths, mortality 6.6 per cent, and aortic stenosis, five with two deaths

230 North Broad Street (2).

CONVERSION OF THE AURICULAR APPENDAGE INTO A LEAKPROOF VALVE TUBE FOR INTRACARDIAC SURGERY

SAMUEL ALCOTT THOMPSON, M D
New York

One of the most important steps in successful intracardiac surgery is the prevention of hemorrhage from the heart. Control or prevention of cardiac hemorrhage can be accomplished in a number of ways The simplest and most frequently used method is a purse-string suture, or opposing purse-string sutures around the wound of entrance.

I am presenting a method for the control or prevention of cardiac hemorrhage during intracardiac surgery by the creation of a valve tube, using the auricular appendage. To my knowledge this method has not been previously described. It was perfected in the surgical research laboratory on dogs and has been used on two human beings.

The auricular appendage lends itself admirably to the creation of a valve tube because its walls are thin and pliable and it can be easily elevated or invaginated into the cavity of the auricle. The appendage hangs down on the outside of the auricle like a dog's ear and is actually a small secondary extra-auricular chamber of the heart. The opening of the appendage into the auricle is large, and when the tip end of the appendage is held away from the side of the auricle it forms an irregular flattened triangular or cone-shaped pocket.

Conversion of this cone-shaped pocket into a valve tube which is leakproof and which can be used without haste and repeatedly at any one operation for intracardiac digital or visual examination or for surgical intervention is accomplished by placing two sets of opposing purse-string sutures.

After the pericardium is opened, the tip of the appendage is picked up and held steady by a noncrushing clamp. A site is now selected on the appendage, just proximal to the tip, which is judged to be of sufficient diameter to admit the instrument or palpating finger. At this site opposing purse-string sutures are placed. The suture material which I prefer is number 0000 black silk on an atraumatic needle. The first suture is on the upper or outer surface of the appendage and consists of three bites. The first needle bite is near the edge of the appendage on its upper surface, the second needle bite is in the center of the upper surface and the third bite is near the opposite edge of the upper surface as is shown in figure 1 *A*. The second purse-string suture is placed in a similar manner on the under or cardiac surface of the appendage at a point directly opposite the first suture. Since the purpose of these sutures is to form a valve which can be repeatedly opened and closed, their proper placement is important. The first set of purse-string sutures forms the outer valve.

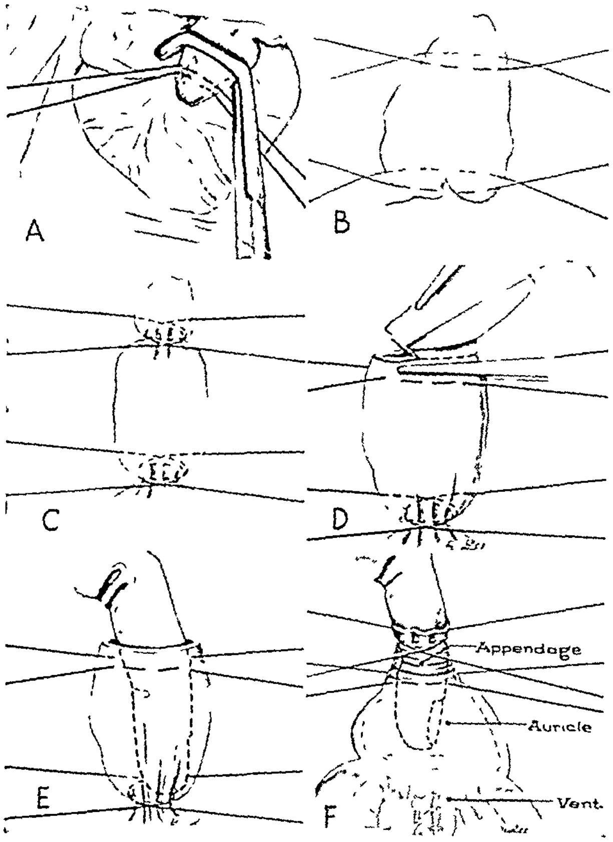


Fig 1 —*A*, opposing anterior and posterior purse string sutures are placed near the tip of the appendage The sutures go through the entire thickness of the wall of the appendage and form the outer valve *B*, a second row of anterior and posterior opposing purse string sutures is placed near the base of the appendage to form the inner valve The appendage is elevated to show the tubelike effect *C*, creation of the valves is accomplished by a purse string pull on the opposing sutures When the sutures are relaxed the appendage returns to its normal shape *D*, the inner valve is closed to prevent a leakage from the auricle, and the tip of the appendage is cut off *E*, a finger or instrument is now inserted through the relaxed outer valve down to the closed inner valve of the appendage *F*, when the tip of the finger has reached the closed inner valve, the outer valve is now closed, the inner valve relaxed and the finger or instrument is inserted into the auricular cavity by invagination of the appendage Removal of the finger or instrument is accomplished by reversing the procedure

---

Fellow of the American College of Surgeons

From the Thoracic Surgical Service of the New York Medical College, Flower and Fifth Avenue Hospitals

The second set of opposing purse-string sutures is now placed at the base of the appendage just distal to the auricle. The first suture consisting of three needle bites is placed in a manner parallel to the first suture of the first set, and the second suture is parallel to the second suture of the first set. This second set of sutures forms the inner valve (fig. 1 *B*).

The sutures go through the entire thickness of the wall of the appendage and when pulled in the manner of purse strings will completely approximate the walls at that point and thus act as a valve and close any existing opening (fig. 1 *C*). However, when the sutures are pulled in the opposite direction of a purse string, they pull the walls of the appendage away from each other and tend to relax and hold open any existing opening. Thus the valves may be closed or relaxed at will by merely reversing the direction of the pull on the sutures. These opposing purse string sutures are not tied until the intracardiac surgical procedure is finished. The use of curved and straight clamps and of different size clamps on the suture ends helps the operator to identify each suture at a glance.

When the inner valve is closed by pulling on the second set of sutures in a purse-string manner, this completely occludes the auriculoappendical opening and separates the auricle from the appendage. As long as the inner valve is closed any manipulation or opening distal to this point causes no loss of blood other than the small amount contained in the appendage itself at the time of the valve closure.

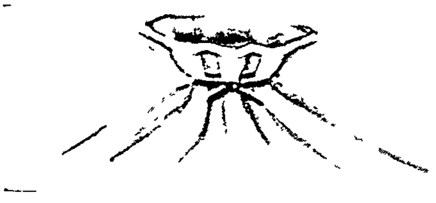


Fig. 2.—At the conclusion of the operation the proximal purse string sutures are tied securely and the part of the appendage distal to this ligature is amputated.

After the two sets of sutures are placed, thus forming an outer and an inner valve and converting the appendage into a tube, the inner valve is closed and held closed by proper suture pull. The tip end of the appendage just distal to the outer valve is now completely cut off by scissor or scalpel, and this opening is relaxed by proper suture pull on the outer valve (fig. 1 *D*). The palpating finger or instrument is inserted through this opening down to the inner valve (fig. 1 *E*). The first set of sutures forming the outer valve is now pulled in a purse-string manner and the outer valve is closed and held closed around the finger or instrument. The inner valve is now released by reversing the suture pull to allow the finger or instrument to enter the auricle and proceed, if desired, through the auriculoventricular valve into the ventricle (fig. 1 *F*). The appendical musculature is thin and pliable and lends itself easily to invagination.

At the end of the maneuver the finger or instrument is withdrawn just distal to the inner valve and this valve is again closed off by proper suture pull. When the inner valve is closed the outer valve is relaxed and the finger or instrument is withdrawn entirely from the appendage. The entrance and exit may be repeated a number of times. When the operation is finished, the sutures forming the inner valve are pulled tight and tied securely, and that portion of the appendage distal to the sutures is cut off completely (fig. 2). Amputation of the appendage after purse-string suture is followed by excellent healing without mural thrombosis.[1]

CONCLUSION

The creation of an outer and inner valve which can be closed or relaxed at will gives the surgeon the opportunity for digital or instrumental examination before and after intracardiac surgery without fear of hemorrhage and without undue haste. The auricular appendage is well suited for the creation of such a valve tube. It is important that the sutures be placed at a definite site and in a definite manner. It is also important that the opening in the distal end of the appendage be large enough to easily admit the palpating finger or an instrument, without stretching or tearing the mouth of the opening.

850 Park Avenue (21).

CORTICAL STEROIDS IN TREATMENT OF CANCER

Observations on Effects of Pituitary Adrenocorticotropic Hormone (ACTH) and Cortisone in Far Advanced Cases

SAMUEL G. TAYLOR III, M.D.
JOHN P. AYER, M.D.
and
ROGER S. MORRIS Jr., M.D.
Chicago

It is now well established that androgenic and estrogenic steroids produce temporary regression of malignant tissue of the breast[1] in certain cases and that estrogenic steroids also have an anticarcinogenic effect on prostatic cancer.[2] There is also some evidence that progesterone may have a similar effect on carcinoma of the cervix,[3] breast[4] and prostate.[5] When pituitary adrenocorticotropic hormone (ACTH) and cortisone became available for clinical trial, it seemed logical to attempt to evaluate their effect on various types of malignant lesions. Murphy and Sturm[6] reported favorable results on transplanted leukemia in rats with

---

1. Hellerstein, H. K.; Sinaiko, E., and Dolgin, M.: Amputation of Canine Atrial Appendages, Surgery **24**: 719 (Oct.) 1948.

From the Rush Department of Medicine and Pathology of the Presbyterian Hospital of the City of Chicago and the University of Illinois

This study was partially supported by the Otho S. A. Sprague Memorial Fund, Wieboldt Foundation and a donation by Mr. and Mrs. Albert Dick Jr.

Associate clinical professor of medicine (Rush), University of Illinois, and associate attending physician, Presbyterian Hospital (Dr. Taylor); resident in pathology, Presbyterian Hospital, and assistant in pathology, University of Illinois (Dr. Ayer), and research fellow, American Cancer Society, and clinical assistant in medicine (Rush), University of Illinois (Dr. Morris).

1. Proceedings of First Conference on Steroid Hormones in Mammary Cancer, edited by Walton Van Winkle, Chicago, American Medical Association, April 1949. Taylor, S. G., III; Slaughter, D. P.; Smejkal, W.; Fowler, E. F., and Preston, F. W.: The Effect of Sex Hormones on Advanced Carcinoma of the Breast, *J. Cancer* **1**: *4, 1948.*

2. (*a*) Huggins, C., and Hodges, C. V.: Studies on Prostatic Cancer: I. The Effect of Castration, of Estrogen and of Androgen on Serum Phosphatases in Metastatic Carcinoma of the Prostate, J. Cancer Res. **1**: 293, 1941. (*b*) Huggins, C.; Stevens, R. E., Jr., and Hodges, C. V.: Studies on Prostatic Cancer: *II. Effects* of Castration on Advanced Carcinoma of Prostate Gland, Arch. Surg. **43**: 209 (Aug.) 1941. (*c*) Huggins, C.; Scott, W. W., and Hodges, C. V.: Studies on Prostatic Cancer: III. The Effects of Fever, of Desoxycorticosterone and of Estrogen on Clinical Patients with Metastatic Carcinoma of the Prostate, J. Urol. **46**: *997, 1941.*

3. Hertz, R.: Personal communication to the authors.

4. Taylor, S. G., III.; Morris, R. S., Jr.; Slaughter, D. P.; Fix, L. W., and Haley, R. G.: The Use and Limitations of Steroids in the Treatment of Advanced Carcinoma of the Breast, read before the Section *on Internal Medicine, at the Ninety-Ninth Annual Session of the American* Medical Association, San Francisco, June 28, 1950.

5. Trunnell, J. B.; Duffy, B. J., Jr.; Marshall, V.; Whitmore, W., and Woodard, H.: Use of Progesterone in the Treatment of Carcinoma of the Prostate, Proceedings of the Annual Meeting of the Association for the Study of Internal Secretion, Atlantic City, N. J., June 1950.

6. Murphy, J. B., and Sturm, E.: Effect of Adrenal Cortical and Pituitary Adrenotropic Hormones on Transplanted Leukemia in Rats, Science **99**: 303, 1944.

pituitary adrenocorticotropic hormone or adrenal cortical extract. Heilman and Kendall[7] produced an arrest of the growth of malignant lymphoid tumor in the mouse with the administration of cortisone. Pearson and others[8] have reported temporary remission in Hodgkin's disease, acute leukemia and chronic lymphatic leukemia in man after use of the two drugs. We have previously reported[9] symptomatic improvement in cancer of the trachea, endothelial myeloma (Ewing's tumor) and carcinoma of the breast during pituitary adrenocorticotropic therapy. However, augmentation of breast carcinoma seemed to occur in one patient. Serious psychic changes occurred in three patients during prolonged therapy.

CLINICAL MATERIAL

The effect of pituitary adrenocorticotropic hormone and cortisone was studied on 26 patients with far advanced malignant disease. All but two of the patients had previously had surgical treatment and/or irradiation. Some patients in the lymphoma group had had extensive nitrogen mustard therapy before starting treatment with pituitary adrenocorticotropic hormone or cortisone. Although the clinical results on the disease process have been favorable in only a few patients, the physiological alteration produced by large doses of these drugs over a relatively long period of time have been of interest and may serve as a timely warning with the increasing availabiilty of these drugs. The following types of neoplasms were treated: 5 carcinomas of the breast, 1 carcinoma of the trachea, 1 carcinoma of the colon, 1 hypernephroma, 1 angioendothelioma (Ewing's sarcoma), 1 neurofibrosarcoma, 1 melanoma, 6 lymphosarcomas, 1 subacute myelogenous leukemia, 1 chronic lymphatic leukemia, 1 acute leukemia, 1 multiple myeloma, 3 Hodgkin's disease and 2 mycosis fungoides.

PROCEDURE

Metabolic balance studies were done on the first few patients, but as it became apparent that no new information was being obtained and that dangerous complications could be predicted adequately by clinical observations and less cumbersome laboratory technics, this was abandoned.

Serum sodium, potassium and proteins, sedimentation rate, hemograms and total eosinophil counts were done. Aliquots were saved for further study where indicated. Results of the Thorn test, 17-ketosteroid excretion and glucose tolerance test were determined for most patients before therapy. These tests were repeated during and after treatment. When feasible, pretreatment and post-treatment biopsies were obtained. Liver function tests and bone marrow aspirations were compared before, during and after therapy in certain patients. Daily weight and fluid balance were obtained.

Pituitary adrenocorticotropic hormone was given every six hours in doses of 25 to 50 mg. and cortisone in doses of 100 to 600 mg. daily in one or more doses. One patient inadvertently received a single injection of 175 mg. of pituitary adrenocorticotropic hormone. This produced vasopressin (pitressin®)-like effects but no untoward reaction. All patients were placed on a low sodium diet and given 3 to 4 Gm. of potassium chloride daily during treatment with the agents.

RESULTS

The clinical response of most patients was reduction in fever, if present, increased appetite and improved strength and well-being. At times the effects were dramatic and appeared usually within 48 hours after starting pituitary adrenocorticotropic therapy and within four to six days after starting treatment with cortisone. This improved state lasted until side effects from long continued therapy ensued or complications produced by the progress of the neoplastic disease developed. Patients hitherto bedridden, vomiting and requiring heavy doses of narcotics were able to become ambulatory, reduce or stop their reliance on narcotics and eat astonishing meals within 48 hours after starting to take the former drug, or a few days later after starting to take the latter. Progressive anemia frequently was controlled, and in several patients the red blood cell count and hemoglobin level rose slightly. Results of liver function tests, if abnormal before treatment, improved. Elevated sedimentation rates were reduced, and jaundice disappeared.

These clinical signs of improvement were temporary, and relapse of the patient occurring shortly after omission of therapy was the rule. However, three patients with lymphosarcoma, one with Hodgkin's disease and one with chronic lymphatic leukemia have maintained this improvement as long as three months after omission of therapy. We have frequently been faced with the problem whether complications produced by continued therapy or relapse from omission caused more distress to the patient.

EFFECT ON TUMOR GROWTH

In no patient with carcinoma was there evidence of reduction in the size of the tumor with pituitary adrenocorticotropic hormone, although induration and edema around the site of the tumor frequently regressed. In three of the four patients with carcinoma of the breast, treated with this drug, the growth appeared to be augmented, although a carcinomatous ulcer healed in one.

Biopsies were obtained before therapy on four patients with cancer of the breast, and biopsies or autopsies were done immediately following therapy. Before this drug was given these patients had all had therapy: in three it consisted of radiation followed by sex steroids. One patient also had nitrogen mustard therapy, and one had had diethylstilbestrol therapy only. Because of these factors, interpretation of the anatomic effects of the drugs is impossible. No effect on the neoplastic growth could be demonstrated. The cells of the tumor were viable and actively proliferating. Metastases were widespread, occurring in the spleen, pancreas and gastrointestinal tract, bladder and lymph nodes. The spleens of two of the three patients with autopsy showed extraordinary extensive permeation by neoplastic cells (fig. 1), suggesting a decreased resistance of this organ to the neoplastic cell.

One patient (case 2) with carcinoma of the breast who was given cortisone showed reduction in the size of skin lesions with healing of ulceration. Biopsies, however, did not show changes in the malignant cells. Four weeks after omission of cortisone therapy, the lesions again ulcerated and new lesions appeared.

Repeated biopsies taken before, during and after therapy in the patient with carcinoma of the trachea (case 7) showed no cytological change in the tumor, and supraclavicular metastases appeared during therapy along with extension of the tumor above and below the initial site. However, carcinomatous ulceration healed and edema subsided, producing an improved airway. No biopsy was obtained of the liver after therapy in the patient (case 6) with hepatic metastases from carcinoma of the colon, and no appreciable decrease in the size of the liver was observed.

---

[7] Heilman, D. H., and Kendall, E. C.: Influence of 11-Dihydro-17-Hydroxy Corticosterone (Compound E) on Growth of Malignant Tumor in the Mouse, J. Endocrinol. **34**: 416-420, 1944.

[8] Pearson, O. H.; Eliel, L. P., and Talbot, T. R.: Use of ACTH and Cortisone in Neoplastic Disease, Bull. New York Acad. Med. **26**: 235-239, 1950. Pearson, O. H.; Eliel, L. P.; Rawson, R. W.; Dobriner, K., and Rhoads, C. P.: ACTH and Cortisone Induced Regression of Lymphoid Tumor in Man, Cancer **2**: 943-945, 1949. Pearson, O. H.; Eliel, L. P., and Rawson, R. W.: Regression of Lymphoid Tumors in Man Induced by ACTH and Cortisone, First Clinical ACTH Conference, edited by J. R. Mote, Philadelphia, The Blakiston Company, 1950, p. 318, 607 pp.

[9] Taylor, S. G., III., and Morris, R. G., Jr.: The Effect of ACTH on Certain Types of Malignancy read before the First Clinical ACTH Conference, Chicago, Oct. 22, 1949.

Results with Pituitary Adrenocorticotropic Hormone (ACTH) and

Case	Sex	Age	Disease State	Therapy		Duration of Course of Therapy (Days)	Change in Tumor During Therapy	Clinical Changes During Therapy	Present Status
				Drug	Gm				
1	F	59	Adenocarcinoma of breast, visceral metastases	ACTH	1.24	25	None	Edema, congestive failure and euphoria	Died 10 days after omission of therapy; autopsy
2	F	54	Adenocarcinoma of breast, local and axillary recurrences	Cor.	3.8	23	Reduction in size of skin nodules, no cytological change (serial biopsies)	Euphoria	Living 57 days after stopping therapy; lesions progressing
3	F	44	Adenocarcinoma of breast, visceral metastases	ACTH	3.85	24	Possible augmentation	Schizoid reaction; edema, moon face and hyponatremia	Died 6 days after omission of therapy; high fever, at autopsy, unusual invasion of spleen by neoplasm
4	F	54	Scirrhous carcinoma of breast R., adenocarcinoma; L., visceral metastases	ACTH	2.25	23	Healing carcinomatous ulcer, augmentation of other lesions	Schizoid reaction following euphoria; control of vomiting, fever and pain, improved nutrition; became ambulatory	Died 2 days after omission of therapy, high fever, at autopsy, invasion of spleen as in case 3
5	F	73	Carcinoma simplex of breast, regional metastases	ACTH	1.18	19	Augmentation; no cytological change (serial biopsies)	Edema, congestive failure, moon face and mental confusion	Living 231 days after omission of therapy; mentally normal; lesion stationary
6	M	38	Carcinoma of colon, hepatic metastases	ACTH	2.98	35	None	Reduced fever, improved liver function and appetite; less pain; euphoria	Living 45 days after omission of therapy, nitrogen mustard administered into hepatic artery on omission of ACTH with reduced size of liver, liver function remains improved
7	M	63	Carcinoma of trachea	ACTH Cor ACTH ACTH ACTH	8.8 3.0 1.6 1.2 0.6	90 15 20 15 12	Healing carcinomatous ulcer; no cytological change (serial biopsies)	Relief of bronchial spasm; most signs of Cushing's syndrome, hypomania, *pneumonia on omission*; pigmentation	Living; still receiving repeated courses of ACTH; tumor *progressing*
8	M	23	Hypernephroma; skeletal and visceral metastases	ACTH	1.5	15	None (serial biopsies)	Moon face, edema and acne	Living; progression of disease
9	M	15	Angioendothelioma with metastases	ACTH	4.187	34	Progressively decreasing mitoses and fibrosis (serial biopsies)	Control of fever, vomiting and anemia; most signs of Cushing's syndrome, mental confusion	Died 4 mo. after omission of therapy; no autopsy
10	M	23	Neurofibrosarcoma; pulmonary axillary metastases	ACTH	1.67	20	None	Euphoria; decreased pain; improved movement of affected joint, less induration	Living 30 days after omission of therapy; pain recurring, induration the same
11	M	52	Melanoma, visceral metastases	ACTH	1.7	17	Hemorrhage into abdominal metastases; melanotic infiltration of skin; serial biopsies, no change	Reduction of fever, decreased pain, increased appetite; edema, euphoria and restlessness	Died 49 days after omission of ACTH; at autopsy, no change in the tumor, further progression of disease
12	M	54	Lymphosarcoma	ACTH	2.225	26	Decrease in size of cervical nodes, serial biopsies; no change	Relief of abdominal pain, improved appetite; euphoria, edema and pigmentation	Died 14 days after omission of ACTH; no autopsy; fever, rapid growth of nodes, anemia
13	F	44	Lymphosarcoma	ACTH ACTH	2.235 2.7	26 29	Decrease in size of involved nodes and abdominal masses, 1st course; serial biopsies, no reduction, 2d course	Relief of pain, improved appetite; edema, pigmentation and euphoria	Living on therapy; relapse immediately after therapy, despite nitrogen mustard and radiation; 2d course did not produce clinical improvement
14	F	49	Lymphosarcoma	Cor ACTH Cor.	3.0 1.265 4.0	24 14 20	Decrease in size of nodes with *cortisone; no* change with ACTH; serial biopsies, no change	Decreased abdominal pain, fever and nausea controlled with cortisone, relapse on changing to ACTH; second course of cortisone, no improvement	Died 3 wk. after last course of cortisone
15	F	67	Lymphosarcoma	Cor. Cor. ACTH	3.79 0.710 1.26	27 9 15	Decrease in size of nodes with cortisone; no effect with ACTH, serial biopsies, decreased mitosis	Marked increase in strength; improvement lasted 6 weeks, after cortisone was omitted; no improvement with ACTH	Discharged from hospital in terminal condition died 2 wk. later; no autopsy

Biopsies before and after pituitary adrenocorticotropic therapy on metastatic lesions in the patient (case 8) with hypernephroma revealed no change, and there was no visible evidence of tumor regression. Biopsies of the endothelial myeloma before and after therapy showed the development of areas of necrosis, slightly decreased mitotic activity and proliferative fibrosis at the margins of necrotic areas. These changes had already begun at the time of the first biopsy and were probably due to previous nitrogen mustard therapy. However, two subsequent biopsies showed further decrease in mitosis and increased fibrosis. The biopsy material on the neurofibrosarcoma was unsatisfactory, but no evidence of regression of the tumor was noted clinically.

The one case of melanosarcoma treated with the adrenocorticotropic agent at autopsy displayed widespread, wildly growing metastases. The patient with subacute myeloid leukemia showed no change in the peripheral blood or bone marrow following pituitary adrenocorticotropic therapy. This was also true of a child with acute leukemia. Although there was a decided reduction in the size of the spleen, liver and lymph nodes in the patient with chronic lymphatic leukemia, no changes were noted in the biopsies of the nodes or in the bone marrow aspiration studies. After 14 days of pituitary adrenocorticotropic therapy, the bone marrow studies of the patient with multiple myeloma had shown no change in the percentage of myeloma cells.

Cortisone Therapy on Patients with Advanced Neoplastic Disease

Case	Sex	Age	Disease State	Therapy Drug	Therapy Gm	Duration of Course of Therapy (Days)	Change in Tumor During Therapy	Clinical Changes During Therapy	Present Status
16	M	29	Lymphosarcoma	ACTH ACTH	2 125 2 550	28 31	Decrease in size of liver and spleen	Fever reduced, cough controlled, chest cleared, appetite improved, blood count improved; jaundice cleared, relapsed 2 wk. after 1st course of ACTH, second remission with 2d course; acne, Cushing's facies	Living; returned to work after disability of 1 yr.; liver and spleen not palpable; good health 3 mo after 2d course of therapy
17	F	63	Lymphosarcoma of liver and spleen with ascites	ACTH	1 810	26	Liver biopsy at onset of therapy, not repeated; liver and spleen greatly reduced in size	Sulfobromophthalein excretion improved, increased vigor, edema, euphoria	Living; improvement maintained 35 days after omission of therapy
18	F	57	Advanced Hodgkin's disease (onset 3½ yr prev.)	ACTH ACTH Cor. Cor. ACTH	1 105 0 600 1 8 6 7 1 04	18 3 35 41 14	Decrease in size of nodes during therapy with recurrences within 1 2 wk. after omission (serial biopsies)	Jaundice, itching and fever controlled, severe signs of Cushing's syndrome	Living 217 days after therapy instituted; disease in remission for 1 2 wk after therapy omitted, several times has appeared terminal but improved with course of therapy, in remission 1 wk after omission of therapy
19	M	28	Hodgkin's disease of liver (duration 3 mo)	ACTH	1 705	20	Nodes reduced; liver and spleen decreased in size	Jaundice disappeared; alk phos. from 28 1 to 12 U ; bilirubin from 7.17 to 1 21 mg.; sulfobromophthalein from 44 5 to 9 77% retention, vomiting controlled; size of liver, spleen and nodes decreased; acne, pronounced euphoria	Continues in remission 107 days after omission of ACTH
20	F	24	Hodgkin's disease (duration 3 mo)	ACTH	2 910	37	Pelvic mass decreased in size	Fever and pain controlled; immediate relapse on omission of therapy	Given nitrogen mustard for relapse after ACTH; in remission 2 mo after nitrogen mustard
21	F	34	Chronic lymphatic leukemia (duration 1 yr.)	ACTH	1 700	18	Spleen, liver and nodes decreased; serial biopsy, no change; hemogram unchanged	Increased comfort due to reduction in size of spleen; belligerency developed; WBC rose from 24,000 to 40,000	Hemogram and splenomegaly continued improved 90 days after omission of drug, gradual decrease in lymphocytes and total WBC
22	M	45	Subacute myelogenous leukemia (duration 2 yr.)	ACTH	2	20	Progressive leukopenia	Increased bleeding tendencies; gradual deterioration; development of abscesses; pigmentation	Died 42 days after omission of therapy
23	F	3	Acute myelogenous leukemia	ACTH	0 4	11	No change in hemogram	Progressive downhill course; glycosuria developed 9th day of therapy	Died 6 days after omission of drug
24	F	55	Mycosis fungoides (duration 25 yr.)	Cor. ACTH Cor. ACTH	1 75 0 675 1 95	10 7 8 36	Few lesions healed; most progressed	Slight euphoria and severe edema; congestive failure; serum Na dropped to 119, K rose to 6 1 mEq. with decreased Na and increased K excretion; fulminating infection after omission of ACTH; glycosuria	Died with pneumonia 66 days after institution of first course of cortisone
25	F	55	Mycosis fungoides (duration 15 yr.)	ACTH ACTH ACTH ACTH	3 972 2 575 1 725 3 290	50 30 20 37	Healing of 80% of lesions; no new lesions appeared during therapy; less malignant-looking cells on serial biopsies; relapse with new lesions on omission of drug	Psychosis developed; diabetic acidosis, hypokalemia with ECG changes; Cushing's facies; immediate control of pruritus and fever. Relapse on omission of the drug	Died of pneumonia on omission of ACTH, 254 days after institution of therapy
26	M	58	Multiple myeloma	ACTH	1 5	15	Bone marrow showed no change	Restlessness, increased previous depression; muscular weakness	Unchanged, still receiving ACTH

All three patients with Hodgkin's disease showed major regression in the size of the tumor. One patient (case 18) has been suitable for repeated biopsies. This patient had previously had what was considered maximal radiation and nitrogen mustard therapy. Radiation had been given one month before the biopsy specimen was taken prior to pituitary adrenocorticotropic and cortisone therapy. This showed areas of necrosis, fibrosis, vascular proliferation and endarteritis obliterans, changes which are usually associated with the effects of roentgen and nitrogen mustard therapy. These areas showed little tendency to increase in size with hormonal or cortisone therapy. A profuse eosinophilia was seen in a biopsy from a lymph node over a month after institution of therapy with pituitary adrenocorticotropic hormone.

One patient (case 15) with lymphosarcoma (figs. 2 and 3) had received roentgen therapy to tolerance before treatment with the two steroids. Another (case 14) had not received prior treatment. Both biopsies obtained before therapy were similar and had characteristics typical of the disease. Treatment with cortisone resulted in the following changes:

> There occurred partial but well defined reduction in the size of the tumor, liver and spleen. There were areas of necrosis with surrounding zones of pale, edematous, proliferating fibrous tissue which increased as therapy was continued or repeated. Between the areas of necrosis and fibrosis large islands of actively proliferating neoplastic reticulum cells occurred. These cells were similar to those seen before cortisone therapy, except that the number of mitotic figures appeared to be slightly decreased and the fragility of the cells appeared to be increased with resultant filamentous forms in large numbers. Subsequent pituitary adrenocorticotropic therapy resulted in progression of the changes and occurrence of an unusual edematous mucoid alteration of the collagen.

Measurement of changes in the tumor of the other three cases of lymphosarcoma were based on reduction in the size of the spleen, liver and abdominal masses, which occurred in all to a pronounced degree. These changes have been maintained for 3 months in one and 1 month in another. The abdominal mass, previously proved to be tumor by biopsy, rapidly increased in size two weeks after treatment with the drug was omitted and has not regressed during a second course of therapy.

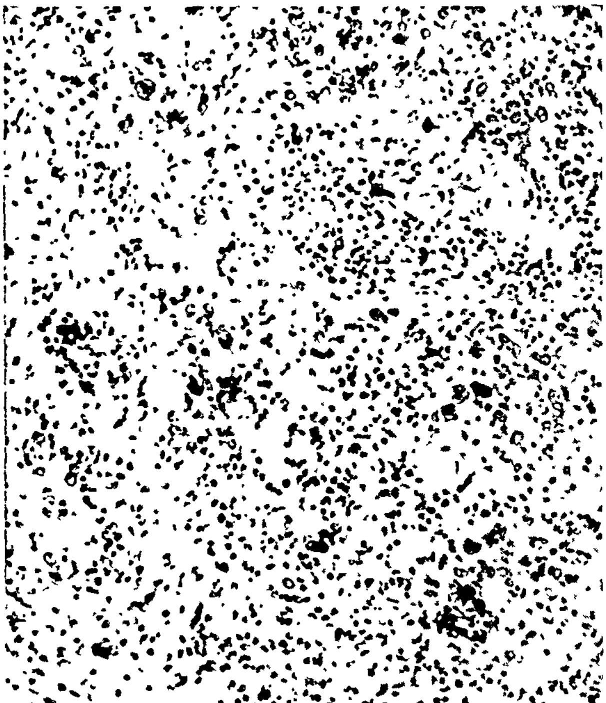


Fig. 1 (case 4).—Spleen demonstrating diffuse permeation of the pulp with metastatic tumor following therapy with pituitary adrenocorticotropic hormone.

Grossly, the lesions of the two patients with mycosis fungoides responded differently to adrenocorticotropic therapy. While one showed pronounced regression and healing of about 90 per cent of the lesions with no new lesions appearing during therapy, the other showed healing of only 10 per cent of the lesions. Cortisone appeared to be of more value to the patient who responded poorly to pituitary adrenocorticotropic hormone:

> Histologically both patients had lesions consistent with mycosis fungoides before treatment. Both patients had received innumerable types of therapy previously, including radiation and antibiotics. Treatment with pituitary adrenocorticotropic hormone resulted in a decrease in acanthosis, a diminished amount and diminished acuteness of inflammatory reaction in the corium, a slightly decreased number of immature reticuloendothelial cells with less mitotic activity and a diffuse proliferative fibrosis similar to that seen in the granulation tissue of healing wounds. The

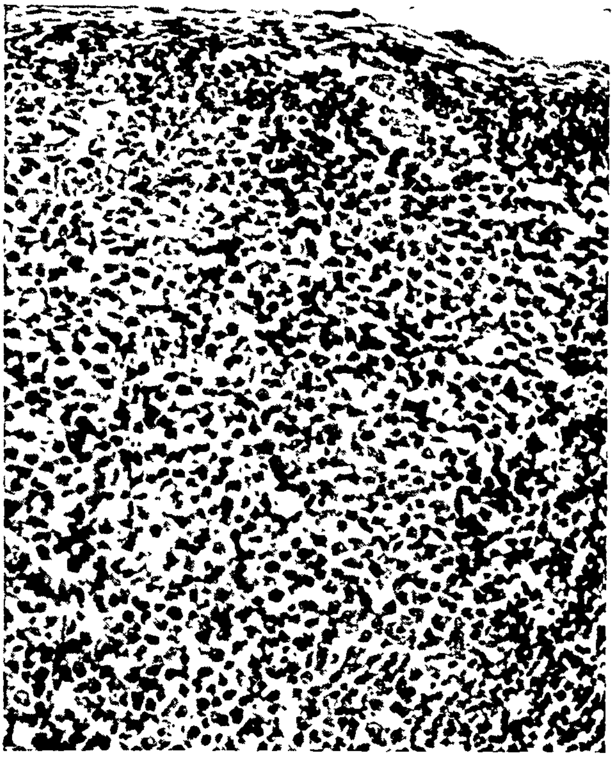


Fig. 2 (case 15).—Lymph node of lymphosarcoma before pituitary adrenocorticotropic hormone and cortisone therapy.

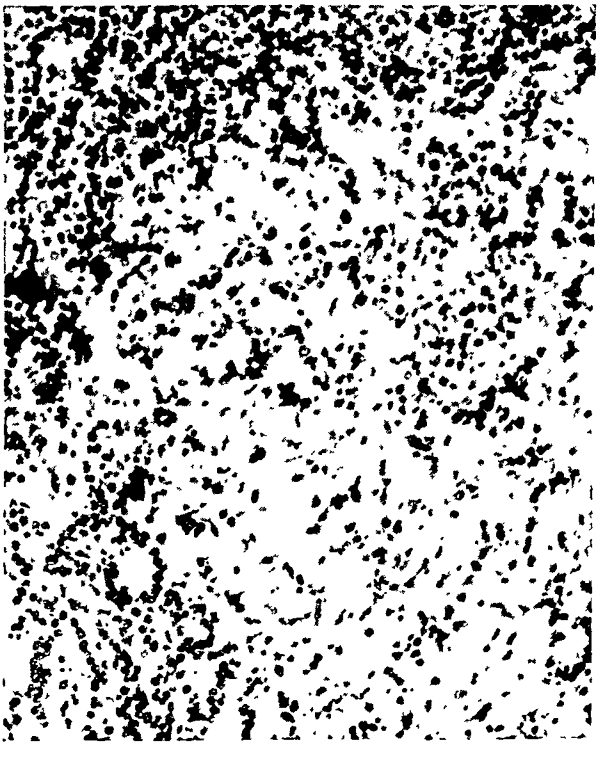


Fig. 3 (case 15).—Lymph node of lymphosarcoma showing progressive fibrosis and necrosis during therapy with the drugs.

inflammatory reaction diminished first in the deeper corium; the first cell to disappear was the eosinophil, followed by the polymorphonuclear leukocyte. Microabscesses of Pautrier in the epidermis also disappeared. The changes noted were of degree only, and the qualitative characteristics of the disease persisted. Correlation of the histological observations to the clinical course was not possible, the changes of the former usually being delayed. Periods without therapy resulted in a slight reversion of the condition to that before treatment. Reinstitution of therapy caused a mild improvement as judged by histological means.

It is difficult to draw conclusions because of the variability of the site of biopsy, the natural course of the disease and the effects of previous therapy. At autopsy both patients had severe pyogenic infections, and one had neoplastic masses in the lymph nodes, liver, lungs and peritoneum as well as the skin.

COMPLICATIONS FROM TREATMENT

The physiological alterations producing complications in our patients with extended pituitary adrenocorticotropic or cortisone therapy can be divided into: (*a*) electrolytic disturbances; (*b*) decreased glucose tolerance; (*c*) mental changes; (*d*) altered response to infection; (*e*) pigment disturbances; (*f*) sexual disturbances, and (*g*) Cushing's syndrome.

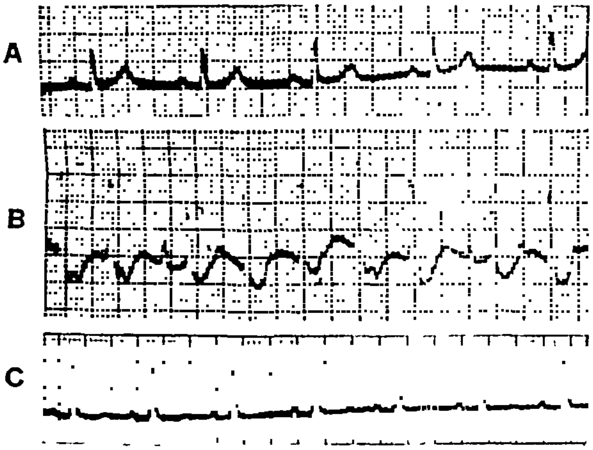


Fig. 4 (case 25).—Electrocardiographic changes in lead 2 during acute hypokalemia produced by prolonged pituitary adrenocorticotropic therapy. Note depression of the S-T segment with inversion of the T wave and progressive auriculoventricular block. *A*, Oct. 26, 1949 the heart rate was 64; the serum potassium level had been 4.1 milliequivalents per liter Sept. 21, 1949. *B*, Jan. 1, 1950 the heart rate was 140 and the serum potassium level 1.8 milliequivalents. *C*, Jan. 7, 1950 the heart rate was 100 and the serum potassium level 4.2 milliequivalents.

(*a*) *Electrolytic Disturbances.*—Disturbances Due to Sodium Retention: Edema occurred in 16 of 25 patients treated with pituitary adrenocorticotropic hormone and four of five treated with cortisone. This produced a serious problem in four patients requiring reduction or omission of the drug. Severe congestive failure was produced in three patients because of this. Hypernatremia did not occur in any patients, but hyponatremia of 112, 119 and 125 milliequivalents of sodium per 100 cc. of serum appeared in two patients despite decreased sodium retention. Hypertension did not occur in any patients.

Disturbances Due to Potassium Loss: Muscular weakness occurred in 19 cases. This may have been due to loss of potassium from the tissues. In two patients hyperkalemia developed despite pronounced potassium loss and evidence of tissue potassium deficiency. In only one patient did there develop acidosis and hypokalemia with typical electrocardiographic changes and the Wenckebach phenomenon (fig. 4). She also had decided glycosuria. Intravenously given potassium and control of the diabetes produced a return to normal electrocardiographic observations.

(*b*) *Decreased Glucose Tolerance.*—A change from normal glucose tolerance curve to a diabetic curve occurred in 11 of 14 patients given this test, both with pituitary adrenocorticotropic hormone and cortisone. Glycosuria and hyperglycemia that persisted for six weeks after the cessation of therapy occurred in a patient with a previously normal glucose tolerance. One patient manifested hypoglycemia after receiving the former drug. The blood sugar level fell to 34 mg. per 100 cc. of blood or less one hour after the patient received 100 Gm. of glucose orally or intravenously on three occasions.

(*c*) *Mental Changes.*—In all but four patients personality changes occurred. Euphoria was noted in 22. This has previously been described in patients treated for rheumatoid arthritis as the result of improved general conditions. Hypomania developed in three patients and frank schizoid reactions occurred in three others. Most patients complained of sleeplessness, restlessness and inability to concentrate. A few stated that their minds became too active. Depressed states frequently followed the above reactions. Two patients became suicidal. In no case, however, did the character change persist over three weeks after discontinuation of therapy.

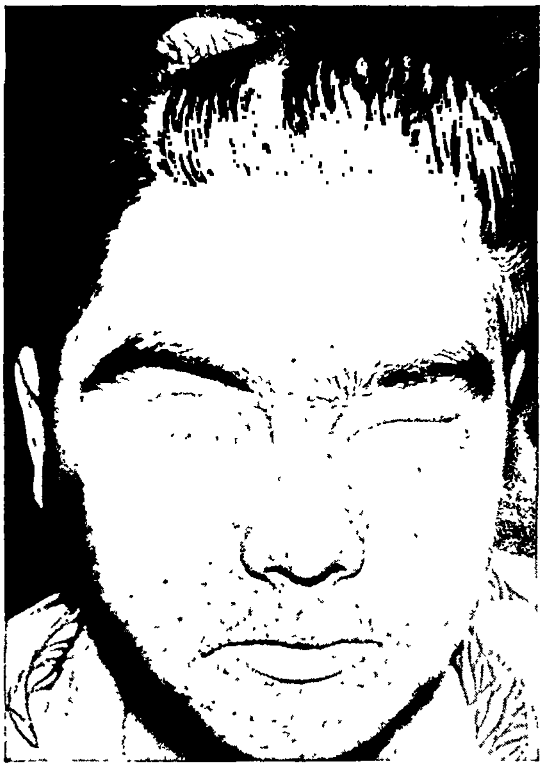


Fig. 5 (case 9).—Moon face and acne of Cushing's syndrome produced by pituitary adrenocorticotropic hormone, 100 to 150 mg daily for three weeks (angioendothelioma).

(*d*) *Altered Response to Infection.*—When the dose of either of the two drugs was reduced or stopped, several patients had fever, at which time evidence of pneumonia or other respiratory infection was first noted. A reinstitution of full doses of the drug has produced control of fever but not necessarily a disappearance of the infection. This sudden onset of evidence of infection occurred less frequently when withdrawal of the drug was gradual. It is possible that when the drug is withdrawn abruptly a temporary hypoadrenocortical state is produced. Another possible explanation is that therapy masks the infection, preventing the usual febrile reaction until withdrawal of the drugs.

(*e*) *Pigment Disturbances.*—Eleven of the patients given pituitary adrenocorticotropic hormone or cortisone displayed greatly increased pigmentation of the skin and darkening of moles while they were receiving the drugs. Two patients had pigmentation in the buccal mucosa, as seen in Addison's disease. The patient with melanoma had melanotic infiltration, absent before treatment, in an abdominal scar.

(*f*) *Sexual Disturbances.*—Amenorrhea developed in the two patients previously having regular periods. Both patients experienced vasomotor disturbances. Acne occurred in eight patients during pituitary adrenocorticotropic therapy and in two during cortisone therapy (fig. 5). Hirsutism occurred in seven of the female patients and in one preadolescent boy.

(*g*) *Cushing's Syndrome.*—Cushing's syndrome with remarkable changes in the face, fat deposits on the shoulder and neck, abdominal protrusion, acne and hirsutism occurred in three patients who received continuous or frequently repeated courses of therapy for five weeks, three months and six months, respectively. This disappeared gradually over a period of six weeks without therapy, but became an exceedingly distressing complication in one previously good-looking woman (fig. 6).

ANATOMIC CHANGES PRODUCED BY PITUITARY ADRENOCORTICOTROPIC THERAPY

Autopsies on six patients who had received pituitary adrenocorticotropic hormone showed that there had occurred a moderate hyperplasia of the adrenals (average weight 10.9 Gm.), a decrease in the size of the thyroid gland (average weight 18 Gm.) and degenerative changes of the female genitalia. The pituitary gland contained variable numbers of eosinophils, basophils and chromophobe cells, and no conclusion could be drawn. Crooke cells were not noted. All the patients had extensive pyogenic infection involving the skin, lungs or kidneys. The patients had the usual number of fibrous adhesions of the serous membranes and benign tumors. The structure of the latter did not appear to be altered by the hormone. Biopsies and specimens obtained at autopsy showed an increased number of macrophages containing melanin. Normal skin and lymphatic tissue did not appear to be affected by the drug.

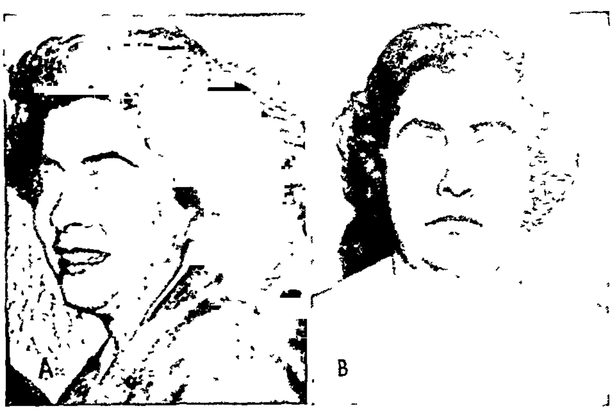


Fig. 6 (case 18).—Patient with advanced Hodgkin's disease (*A*) six months prior to cortisone therapy; *B*, Cushing's syndrome produced by 11.5 Gm. of cortisone given over a 90 day period. Note the fat pads on the shoulders and the moon face.

COMMENT

The nonspecific beneficial effect of pituitary adrenocorticotropic hormone and cortisone in patients not showing tumor regression is a phenomenon on which it is interesting to speculate. It may represent an inhibition of the local tissue reaction to the tumor, analogous to the inhibition of the tuberculin reaction produced in hyperimmune guinea pigs by cortisone, as reported by Stoerk.[10] Dramatic improvement in breathing occurred in a patient with carcinoma of the trachea; this has been repeatedly produced with decreased inflammatory reaction around the tumor and relief of bronchial spasm with courses of one or the other drug for the last 13 months, although the tumor itself has been progressing. Reduction in fever is characteristic in other diseases treated with the drugs.[11] This does not appear to be a typical antipyretic reaction, as it is not associated with sweating. This again may be related to inhibition of tissue reaction.

In only the patients with lymphosarcoma, chronic lymphatic leukemia and Hodgkin's disease does there appear to be any worth while benefit. However, most of these patients show improvement only when side effects become troublesome and at times alarming; they then relapse before complete recovery from these side effects has occurred, making further therapy impossible or unwise.

Only one patient with Hodgkin's disease has had a remission, lasting four months. This patient has Hodgkin's disease of the liver, the disease being of recent origin and previously untreated.

SUMMARY AND CONCLUSIONS

Twenty-six patients with advanced neoplastic disease have been treated with pituitary adrenocorticotropic hormone (ACTH) or cortisone. The former was given in doses of 100 to 200 mg. daily, for individual periods of two weeks to three and one-half months. The latter was given in doses of 100 to 300 mg. daily for similar periods.

Temporary regression of neoplastic lesions were produced in 3 patients with Hodgkin's disease, 5 patients with lymphosarcoma and 1 patient with chronic lymphatic leukemia. A doubtful regression of angioendothelioma (Ewing's sarcoma) occurred with pituitary adrenocorticotropic hormone.

Patients with carcinoma, acute leukemia, myelogenous leukemia and melanoma showed no control of the neoplastic disease, but most patients manifested striking temporary improvement in their general condition.

Physiological alterations produced by these hormones given in large doses make repeated or prolonged therapy ill advised.

---

[10] Stoerk, H. C.: Inhibition of Tuberculin Reaction by Cortisone in Vaccinated Guinea Pigs, Federation Proc. 9: 345, 1950.

[11] Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Effects of Cortisone Acetate and Certain Other Conditions, Arch. Int. Med. 85: 545 (April) 1950. Finland, M.; Kass, E. H., and Ingbar, S. H.: Effects of ACTH in Primary Atypical (Viral) Pneumoniac and Pneumonoccal Pneumonia (Preliminary Report), Proceedings of the First Clinical ACTH Conference, edited by J. R. Mote, Philadelphia, The Blakiston Company, 1950, p. 529.

Cerebral Hemorrhage and Cerebral Embolus.—The diagnosis of cerebral embolus is indicated whenever there is a sudden onset of neurologic symptoms in a patient with an acute or chronic endocarditis, auricular fibrillation, a recent coronary thrombosis, septicemia or a septic focus. These cases often present clinical evidence of embolic phenomena elsewhere in the body. The differential diagnosis between cerebral hemorrhage and thrombosis is difficult since both occur in patients of the same age group and in patients with arteriosclerosis and hypertension. Several points in the history and physical examination make this differentiation possible in the majority of the cases: 1. Convulsions at the onset favor an intracerebral hemorrhage since they occur in about 14 per cent of such cases and in only about 7 per cent of the patients with a cerebral thrombosis. 2. The occurrence of severe headache, nausea or vomiting at the onset favors the diagnosis of cerebral hemorrhage. 3. Cheyne-Stokes or labored respirations are much more common in cases of cerebral hemorrhage. The same is true of conjugate deviation of the eyes. 4. Stiffness of the neck, quadriplegia and bilateral Babinski's toe sign occur in a much higher percentage of the cases of cerebral hemorrhage. 5. A bloody cerebrospinal fluid is diagnostic of a cerebral hemorrhage.—*Proceedings First National Conference on Cardiovascular Diseases,* American Heart Association and The National Heart Institute, U. S. Public Health Service, 1950.

HOMOLOGOUS SERUM JAUNDICE

Report of Eight Fatal Cases

JOHN RUNYAN, M.D.
ARTHUR W. WRIGHT, M.D.
and
RICHARD T. BEEBE, M.D.
Albany, N. Y.

The occurrence of jaundice after the administration of human tissue products was first described by Hirsch,[1] who observed that jaundice developed in 14.8 per cent of 1,289 persons vaccinated for smallpox with "humanized lymph" in glycerin. A similar observation was made by Lürman [2] in 1885. By 1908 Weber [3] had collected from the literature 53 cases of acute yellow atrophy appearing in patients who had been treated in clinics for syphilis. Theiler [4] in 1918 observed jaundice in horses following the injection of homologous serum.

However, it was not until 1937 that the first report of the development of hepatitis after the injection of a preparation containing, among other substances, human blood serum appeared. In that year Findlay and MacCallum [5] reported the occurrence of hepatitis among British troops after yellow fever vaccination. Since this report hepatitis has been noted to result from the administration of convalescent measles serum [6] and mumps serum,[7] from immunization against sand fly fever [8] and from yellow fever vaccinations.[9]

The major impetus for the careful and detailed investigation of the cause of hepatitis following the introduction into the body of products containing human serum was provided by the report of 28,585 cases of hepatitis, with 62 deaths, occurring between Jan. 1 and July 4, 1942, among U. S. Army personnel who had been inoculated with yellow fever vaccine.[10] The extensive investigations of Sawyer and his co-workers [11] and earlier by Findlay and associates [12] definitely incriminated the human serum in the vaccine as the source of the icterogenic agent. The human serum component of the vaccine was eliminated after this outbreak.

The term homologous serum jaundice was first used in a memorandum prepared by medical officers of the British Ministry of Health in 1943.[6b] Hepatitis from both plasma and blood was mentioned at this time. Subsequent reports [13] would indicate that serum jaundice from whole blood was less common than from pooled plasma or serum. Spurling, Shone and Vaughn,[14] in a well controlled study, reported an incidence of 7.3 per cent of jaundice cases in 1,054 persons receiving serum or plasma but no definite cases in 891 others given a total of 2,278 transfusions of whole blood.

Bigger [15] in 1943 presented suggestive evidence that hepatitis may be spread by contaminated syringes. Outbreaks of jaundice have been reported in syphilitic,[16] diabetic [17] and arthritic clinics,[18] in a tuberculosis sanatorium [19] where monthly blood samples for sedimentation rates were taken, and after injections of penicillin [20] and acriflavine.[21] Cases of serum jaundice after thiopental (pentothal®) anesthesia have been mentioned.[20b] It has been shown [15] that staphylococci mixed with blood and sucked into a syringe were not completely removed or killed by repeated rinsing in sterile water and a biniodide antiseptic solution. Mendelssohn and Witts [22] demonstrated that some blood regurgitates back into the vein when venipuncture is done by the orthodox method, thus providing a means of transferring the agent present in a contaminated syringe into the blood of the subject. Various procedures have been suggested to eliminate these outbreaks, but the simplest is to use separate syringes sterilized by dry heat at 160 C. for one hour.[23]

Extensive study of the agent responsible for serum jaundice, as well as that of infectious hepatitis, has been handicapped by the inability to transmit the disease to animals.[24] Some hope for its successful transfer to birds, however, is found in the report of Lucké and Ratcliffe.[25] Homologous serum jaundice has been successfully transmitted to human beings by intradermal, subcutaneous, intramuscular and intravenous injections,[26] at least once by feeding serum [24a] and at least once by intranasal instillation.[24b] Transmission has been possible with a dose as small as 0.01 cc.,[27] and considering the dilution of the serum in the yellow fever vaccine [11] a yet smaller dose must have been effective.

The incitant of homologous serum jaundice, as well as that of infectious hepatitis, is filtrable,[28] is resistant to heating at 56 C. in the dried state for one-half hour,[24c] can be stored for months in the dried state [29] and for three and one-half years in the frozen state [30] and can be exposed for months to 0.5 per cent of an equal mixture of phenol and ether [29] and other bactericidal agents.[31] The serum hepatitis agent is present in the blood stream before jaundice becomes manifest [26b] and apparently disappears two to two and one-half months after jaundice clears.[24a, c] It has not been recovered from the stools.[32]

The incubation period, after introduction of the serum jaundice incitant, is variable, ranging from 40 to 180 days,[33] with a majority of the cases occurring 55 to 135 days after inoculation.[33b] Reinfection with the agent of serum hepatitis, called virus SH by Neefe, Gellis and Stokes,[30] has not been described, but there have been reports of reinfection with the incitant of infectious hepatitis, or virus IH,[34] although reinfection is unusual.[30] A previous attack of serum jaundice does not produce immunity against infectious hepatitis, and there is suggestive evidence that susceptibility is actually enhanced.[35] No cross immunity between serum hepatitis and infectious hepatitis has been demonstrated,[36] which is perhaps the best evidence that there are either two different agents or two immunologically distinct strains of the same agent.

Gamma globulin has proved to be of value prophylactically in infectious hepatitis by providing complete protection or by modifying the course of the disease.[37] Data on the use of gamma globulin in serum hepatitis are inconclusive. Grossman and co-workers [38] showed that two 10 cc. injections of gamma globulin given a month apart during the incubation period were highly protective among the victims of battle casualties. A single injection of 10 cc. prolonged the incubation period without altering the disease.[39] In human volunteer experiments gamma globulin neither protected against the strain of serum hepatitis virus used nor prolonged the incubation period.[40] Oliphant [24c] found that yellow fever vaccine containing the icterogenic agent, exposed to ultraviolet irradiation, failed to produce the disease when inoculated into 10 volunteers. Wolf and co-workers,[41] using an Oppenheimer-Levinson [42] apparatus, found that irradiation produced no significant alterations of the plasma protein levels. The

---

From the Department of Medicine, Albany Medical College, Union University and Albany Hospital.

This article has been shortened in The Journal by omission of the footnotes, which will appear in the authors' reprints.

Drs. Lawrence J. Early of Hudson, N. Y., S. Gene Rogati of Valatie, N. Y., Sidney Kimelbolt of Castleton on Hudson, N. Y., and T. Frank Marnell of Great Barrington, Mass., permitted us to report the patients seen with them recent work of Blanchard and co-workers[43] with a Hakel and Sockrider type of apparatus,[44] suggests that irradiation of plasma and serum is both safe and highly effective in preventing serum hepatitis Inoculation of 11 volunteers with irradiated icterogenic serum failed to produce hepatitis, although it developed in 47 per cent of the control group Allergic responses were not observed with irradiated serum and plasma

With the increasing use of plasma and whole blood, the number of cases of homologous serum jaundice will continue to rise proportionately When one considers an incidence of 1 6 to 7 3 per cent,[45] with a mortality rate "considerably higher" than 0 2 to 0 4 per cent,[46] the importance of serum hepatitis cannot be underestimated That the use of pooled plasma which has not been irradiated and/or whole blood is not without danger is again brought out by the seven fatal cases here reported An eighth case is added, even though the patient received neither plasma nor whole blood, because the peculiar contact of the victim with one of the seven patients included in this report may represent an unusual mode of transmission of the icterogenic agent

REPORT OF CASES

CASE 1—J F, a white man aged 39, with a known duodenal ulcer, was admitted to the hospital on Sept 21, 1944 because of symptoms of obstruction and pain He underwent subtotal gastric resection a week later During the operation he was given 500 cc of whole blood and 250 cc of nonirradiated plasma His recovery was uneventful, and he was discharged

Forty five days after the operation an upper respiratory tract infection with fever developed This was followed by the appearance of light stools, dark urine and jaundice On the day of the patient's second admission, December 3 he had visual hallucinations and became confused He lapsed into a semicomatose state shortly before he was seen in the Emergency Room At this time his temperature was 95 2 F and his pulse was rapid and weak He was decidedly jaundiced and stuporous, and there was a cholemic odor to his breath The liver was not percussible The red blood cell count was 4 5 million per cubic millimeter, the hemoglobin was 15 Gm, the white blood cell count was 20 000, with 69 per cent neutrophils, 27 per cent lymphocytes and 4 per cent monocytes The urine showed bile (1 plus) and contained a few red blood cells The blood sugar was 35 mg and the nonprotein nitrogen 48 mg, per 100 cc The icterus index was 67 and the carbon dioxide-combining power 28 Lumbar puncture revealed nothing abnormal in either dynamics or chemical content The patient expired 24 hours after admission

At autopsy the body was moderately jaundiced The liver was much smaller than normal, weighing only 1,160 Gm Its capsule was thin, delicate and wrinkled slightly Through it the alternating dark reddish and paler grayish red, soft, flabby hepatic tissues could be seen The cut surfaces showed still more clearly the alternating dark and light reddish areas indicative of extensive acute degeneration and necrosis The appearance save for the atrophy and flabbiness, was not unlike the nutmeg appearance of chronic congestion The organ had the general flabby, dark red splotchy characteristics of red atrophy

Histologically the liver showed evidence of extensive, widespread acute hemorrhagic necrosis Every lobule was affected The hepatic cells were decidedly and diffusely reduced in number, and the bulk of the tissue of each lobule was severely diminished in amount In the spaces where the hepatic cells had been there now were present accumulations of macrophages, many filled with brown pigment, neutrophils and often erythrocytes Here and there, especially at the peripheral portions of the lobules degenerated or necrotic hepatic cells with their cytoplasm swollen, granular and finely vacuolated still persisted, either singly or in small groups They were usually so degenerate, and sometimes so large and filled with small vacuoles that it was difficult to recognize them There was no evidence of any attempts at regeneration Because of lobular shrinkage as a result of hepatic cell necrosis, the portal zones were much closer to each other than usual, presenting the appearance of the liver of acute yellow atrophy The portal areas, too were diffusely infiltrated with chronically inflamed cells, especially lymphocytes Intrahepatic bile ducts and ductules appeared to be increased in number, but this is interpreted as a relative increase only, for there was no evidence of actual proliferation of these structures The kidneys of this patient were large and pale and histologically showed the changes of advanced tubular nephrosis, the proximal convoluted tubules being most extensively involved

CASE 2—H C, a white man aged 20, underwent operative intervention shortly after admission on Oct 5, 1944 for an appendical abscess At operation he received 500 cc of whole blood and 250 cc of nonirradiated plasma The next day an additional 250 cc of plasma was given His postoperative course was uneventful, and he was discharged October 22

He remained well until Dec 14, 1944, 70 days after he received the plasma He then began to experience chills, fever and malaise, and jaundice developed On his admission to the hospital four days later he was acutely ill, semicomatose and jaundiced, with a temperature of 95 4 F There was tenderness in the right upper abdominal quadrant

His hemoglobin was 12 Gm The leukocyte count was 16,900 per cubic millimeter, the nonprotein nitrogen was 104 mg and the blood sugar 95 mg, per 100 cc, the icterus index was 58 and the serum bilirubin 8 7 mg per 100 cc The test for bile in the urine was positive, urobilinogen was normal He did not respond to parenterally given fluids and to oxygen therapy, he expired six hours after admission

At autopsy the skin surfaces were all decidedly icteric The liver was atrophic, weighing 1,460 Gm Its edges were soft, and the organ appeared browner than is normal Portions of the capsular surface were inflamed and covered with a thin layer of fibrinopurulent exudate The exposed cut surfaces of sections were mottled reddish gray, congested and soft, and the stromal markings were increased Each lobule seemed to be composed of a dark reddish center surrounded by a paler gray zone which appeared necrotic The appearance was characteristic of diffuse necrotizing hepatitis

Histologically the liver showed the same widespread, diffuse hemorrhagic necrosis as seen in case 1 but in an earlier stage All lobules were affected, but many hepatic cells, either in various stages of degeneration or already necrotic, were still recognizable Most of these were in the peripheral or middle zones of the lobules, the cells in the central portions being necrotic or missing Also present within the hepatic cords, mixed with persisting liver cells and sometimes actually surrounding or infiltrating them, were macrophages and neutrophils Many erythrocytes were also present, evidence of actual hemorrhage into the hepatic tissues No evidence of regeneration could be found Pigment deposits were relatively few and inconspicuous Portal areas were closer together than normal, were infiltrated with inflammatory cells and contained increased numbers of bile ducts The latter structures actually appeared to be proliferative, for their number and appearance suggested their regenerative character although actual mitoses were not observed The kidneys were large and pale, they showed the changes of advanced tubular nephrosis similar in type to that found in case 1

CASE 3—E C, a woman aged 40, a housewife, aborted spontaneously and hemorrhaged severely on Dec 17, 1944 During her three weeks' hospitalization she had several profuse hemorrhages and was given numerous plasma and whole blood transfusions A severe reaction followed the first blood transfusion, and it was found that she was Rh negative

On April 30, 1945 (103 days after the patient first received plasma and blood) she complained of restlessness and became lethargic Gradually she became comatose, progressive jaundice developed, and she was admitted to the hospital on May 2 She was in deep coma and was severely jaundiced Her temperature was 97 F The liver was felt 1 fingerbreadth below the costal margin The hemoglobin level was 16 Gm, and the leukocyte count was 10,300 per cubic millimeter The blood sugar level was 57 mg and the nonprotein nitrogen 120 mg, per 100 cc, the carbon dioxide-combining power was 34 volumes per cent

The total serum protein determination was 5.8 Gm., with albumin 2.4 Gm. and globulin 3.4 Gm., per 100 cc. The prothrombin time was 150 seconds. The icterus index was 51, the serum bilirubin was 8.8 mg., total cholesterol 106 mg., free cholesterol 50 mg. and cholesterol esters 56 mg., per 100 cc. The test for bile in the urine was positive. The patient died 24 hours after admission.

At autopsy the liver of this patient was extremely small, weighing only *1,000 Gm.* Its capsule was thin, transparent and smooth, and through it could be seen the pale but congested, soft flabby hepatic tissue. On sectioning the organ the cut surfaces were found to be paler than normal, central congestion alternated with lighter bands of yellowish gray, suggestive of fatty degeneration and necrosis. Histologically, the changes in the liver were those of acute massive necrosis affecting the central and midzonal regions of the lobules and tending to affect less severely the peripheral portions. Hepatic cells were missing in the central parts of the lobules, their places being taken by inflammatory cells, particularly macrophages, some with ingested light brown pigment. Lymphocytes and neutrophils were not abundant. At the periphery of the lobules, however, were periportal zones of persisting hepatic cells which showed advanced fatty degenerative changes. The degenerative cells sometimes occurred singly but were more often in small groups tending to surround the portal areas, which themselves were heavily infiltrated with lymphocytes. Intrahepatic bile ducts were not unduly prominent, and there was no evidence of regeneration of either hepatic cells or bile ducts. The kidneys, as in the other cases, were large, pale and soft and were the seat of advanced nephrotic changes which affected primarily the proximal convoluted tubules.

Case 4.—I. C., a white woman aged 18, after tonsillectomy in another hospital on Nov. 17, 1948 hemorrhaged profusely. She went into shock and was given 1,000 cc. of nonirradiated plasma. She had a slight chill after receiving the second unit of plasma, but she made an uneventful recovery.

She began to feel ill and to have a copper tint to her skin 67 days after receiving the plasma. A week later she was found in a coma by a physician who was called to see her. She was admitted to the hospital on Jan. 30, 1948, deeply jaundiced and in a comatose state. The liver was not enlarged. The blood sugar level was 57 mg. and the nonprotein nitrogen 48 mg., per 100 cc. The leukocyte count was 12,800 per cubic millimeter. Shortly after admission she began to have convulsions, which continued until her death 24 hours later. An autopsy was not obtained.

Case 5.—M. B., a white female infant 14 days of age, entered the hospital on Jan. 11, 1948 with a five day history of diarrhea. At this time she was acutely ill, with a temperature of 103 F., evidence of dehydration, grayish skin, and rales at both lung bases. Fluids were administered parenterally, and during the following two days small quantities of whole blood and nonirradiated plasma were given. The infant had an extremely stormy course, but she eventually recovered and was discharged 68 days after admission.

On May 8, which was 119 days after the child first received plasma and blood, she became restless and refused to eat. Vomiting followed, with evidence of abdominal pain and, later, the appearance of mild jaundice and chalklike stools. Vomiting became more profuse, and 12 days after the onset of symptoms the infant was readmitted. She appeared lethargic and moderately icteric, the temperature was 102 F. The liver was enlarged 2 fingerbreadths below the costal margin. Several convulsive seizures occurred and she grew rapidly worse, dying two hours after admission. Bilirubin was 9.6 mg. per 100 cc., and the cephalin flocculation determination was 4 plus. The urine contained bile (2 plus) but was negative for urobilinogen.

At autopsy the body was only faintly icteric. The liver appeared larger than normal, weighing 240 Gm., 50 to 60 Gm. heavier than the average weight for this age. Its capsule was smooth, glistening and a mottled yellowish brown. The organ was said to be rather firm. Cut surfaces of sections revealed large, reddish, meaty foci which oozed blood and had lost all characteristics of normal hepatic architecture. About these foci were irregular patches of pale yellowish, lobulated liver tissue which appeared degenerated or necrotic.

Histologically, the changes in the liver of this infant were those of diffuse, massive, acute degeneration and necrosis in an early stage of development. No lobules were spared. In the central regions the hepatic cells were necrotic or missing, while farther toward the peripheral portions hepatic cells showing advanced fatty degeneration were present in considerable numbers. Inflammatory cells, especially macrophages and neutrophils, were abundant though scattered, and even lymphocytes were *sometimes seen. The most intense inflammation was present* in the central portions of the lobules and in the portal areas which in this case were actively inflamed. Bile ducts were abundant and in a few areas were found to be actively regenerating. Regeneration of hepatic cells was not observed. The kidneys, as in the other cases, were enlarged and nephrotic.

Case 6.—B. M., a white female infant 10 days of age, was admitted on Feb. 9, 1948 with a three day history of diarrhea. The patient was acutely ill, dehydrated and in a state of mild acidosis. During her 46 days of hospitalization, besides the usual parenteral fluids, she was given six small infusions of nonirradiated plasma and three transfusions of whole blood without reactions. She was discharged apparently well.

On May 27, which was 105 days after the first administration of plasma and blood, the child became jaundiced. Three days later she reentered the hospital because of vomiting. At this time she was decidedly icteric and lethargic. The liver was enlarged 4 fingerbreadths below the costal margin. The blood bilirubin was 12.2 mg., the nonprotein nitrogen 72 mg. and the blood sugar 37 mg., per 100 cc. The cephalin flocculation reading was 4 plus. The patient died eight hours after admission.

At autopsy the liver was not atrophied or enlarged, weighing 176 Gm. Its surface was smooth, glistening, yellowish brown and firm. The cut surfaces of sections had an irregularly mottled appearance and small, reddish, "meatlike" foci which oozed blood alternating with pale yellowish foci. The former were regions of so called red atrophy, while the latter were composed of degenerated hepatic tissues.

Histologically, the liver changes resembled those in the previous cases, namely, widespread, diffuse acute degeneration and necrosis. The necrosis was present particularly in the central portions of the lobules while degenerative changes, particularly of the fatty type, were noted chiefly in the peripherally situated cells that were filled with small vacuoles. Lobules generally were somewhat smaller than normal, and portal areas appeared closer together than normal. Macrophages, many of them filled with light yellow granules, and neutrophils were abundant, the latter cells chiefly in and about portal areas. Bile ducts were fairly numerous, but no evidence of regeneration of either hepatic cells or bile duct epithelium was found. The kidneys, as in all the other cases, were large, pale, and nephrotic.

Case 7.—T. F., a white man aged 61, 90 days prior to admission received numerous blood transfusions after he underwent resection of the lower part of the colon for benign polyposis in a Boston hospital. Jaundice appeared one week before his admission here on Oct. 22, 1948 and increased rapidly. The patient became semicomatose, his temperature was 99.1 and he was deeply jaundiced. The lungs were clear. The liver was not palpable. The urine was positive for bile. The hemoglobin was 15 Gm. The leukocyte count was 19,700 per cubic millimeter. The icterus index was 150, and the direct van den Bergh reading 5.5 mg. per 100 cc. The patient was given fluids intravenously, but he remained comatose and died 24 hours after admission. An autopsy was not obtained.

Case 8.—C. B., a woman aged 30, an undertaker's wife, was seen in consultation by one of us (R. T. B.) on June 13, 1949. A week previously she had displayed malaise and low grade fever followed by deepening jaundice, coma and convulsions. It was learned that she had assisted her husband in embalming the body of the patient I. C. (case 4) 128 days prior to her illness. Also, 68 days before her illness began she had a benign tumor removed from her right axillary region while under intravenous thiopental sodium anesthesia. However, adequate sterile technic is carried out routinely in the hospital where this latter procedure was done.

The patient was in coma, decidedly jaundiced, dehydrated and breathing rapidly. There were a few scattered coarse rales throughout both lung fields. The heart was not enlarged. The liver was not palpable. There was slight edema over both lower extremities. In spite of parenterally given fluids and aureomycin hydrochloride, she grew steadily worse and died 72 hours later. The urine contained albumin (3 plus) and the hemoglobin was 14.5 Gm. The leukocytes numbered 6,100 per cubic millimeter. The icterus index varied from 170 to 220.

At autopsy the liver was decidedly shrunken and weighed only 630 Gm. The capsule was yellowish green, and the cut surface was deep red. Sections revealed almost complete obliteration of parenchymal cells with proliferation of the bile ducts. There was engorgement of the sinusoids with red cells and many macrophages, some of which contained yellowish brown pigment. The kidneys showed the changes of advanced nephrosis.

COMMENT

The striking characteristics of these eight cases of acute hepatitis, all but one of them occurring in patients who had received either plasma and/or whole blood from 45 to 128 days before the onset of symptoms, are the acute, fulminant nature of the illness and the fact that it progressed speedily to death within a few days. In general, the clinical course of the disease in the eight cases was similar and the duration of illness, from onset to death, was from three days in case 1 to 13 days in case 3. There was a predominance of central nervous system symptoms with psychosis (case 1), convulsions and varying states of consciousness. According to the classification outlined by Turner and co-workers,[9b] these could be grouped under subdivision one.

The precise incubation period cannot be definitely established in these cases with the exception of cases 1 and 4, because the blood or plasma was given over a period of several days or longer. The shortest possible incubation period was 45 days, the longest 128 days. These periods fall well within the reported extreme variable, but the fatal outcome would seem to bear no particular relationship to the length of the incubation period.

Five of the patients in this series received whole blood and nonirradiated plasma; the other two received either blood alone or plasma alone. The source of the icterogenic agent in case 8 is not definitely known. The development of serum hepatitis in three laboratory assistants and three orderlies handling contaminated serum has been described,[47] as well as hepatitis occurring in a blood bank worker who had received multiple needle pricks on the fingers.[19] It is quite possible that accidental inoculation took place when the body of I. C. (case 4) was embalmed. The long incubation period (128 days) is in the range of that found in serum hepatitis. Although hepatitis following intravenously given thiopental sodium is known to occur,[20b] adequate sterile technic is used in the operating rooms of the hospital where the benign tumor was removed, and it is less probable that inoculation took place at this time.

It is remarkable that six of the eight patients included in this report came to autopsy. We have been able to find in the literature [48] only scattered reports of the autopsy observations in cases of serum hepatitis. Lucké in his classic description of fatal infectious hepatitis [49] did not attempt to separate cases due to contact infection from those due to infection from blood, serum or products containing serum or its derivatives. Undoubtedly many of his cases were due to inoculation of patients with virus in blood, plasma or serum.[50] From gross and microscopic points of view, the pathologic changes in the livers of these patients were similar to, if not actually identical with, the findings reported in Lucké's monograph.

In general the liver was smaller than normal, although in at least two cases the organ was normal in size or slightly enlarged. Its surfaces were generally smooth, though sometimes wrinkled, and the color was mottled reddish and yellow or yellowish gray. The organ was generally flabby and sometimes quite soft. When sections were examined the changes of diffuse necrosis, sometimes hemorrhagic in type, were evident. The organ was sometimes bile stained, sometimes not.

The histologic changes were those of widespread acute degeneration and necrosis. In the case in which death occurred only a few days after onset, degenerative changes and necrosis of the hepatic cells predominated; in those in which death did not occur for a week or more, necrosis was advanced and many hepatic cells had already been removed, leaving only stroma and inflammatory cells. In none of the cases was any normal hepatic tissue found. Degeneration, necrosis or actual cell lysis and removal affected all the hepatic tissues.

Actual regeneration of hepatic cells and bile duct epithelium was noted only rarely in these cases, possibly because of the rapid progress of the infection to death. The histologic picture was that of an overwhelming, fulminating, hepatic-cell-destroying process which progressed rapidly to a point where all liver tissues were either degenerated or destroyed.

There is suggestive evidence that serum hepatitis from pooled plasma may be prevented by the use of ultraviolet irradiation.[51] The routine use of irradiated plasma was instituted in the Albany Hospital in February 1949. Since then there have been 10 known cases of hepatitis that have followed the administration of irradiated plasma and whole blood. This group will be reported in detail elsewhere.

As multiple injections with a single syringe and venipuncture using improperly sterilized syringes may spread the agent of serum hepatitis, these practices are not without danger. It is to be stressed that the hazards of serum hepatitis exist not only for recipients of human blood products but also for laboratory workers, technicians, nurses, physicians and undertakers.

SUMMARY

1. Seven cases of fatal serum hepatitis from whole blood and/or pooled plasma are reported, with autopsy observations in 5. An eighth case of fatal hepatitis in which blood or plasma had not been administered, also with autopsy, is added because the circumstances strongly suggest that the infection was contracted while the woman helped to embalm a person who died of serum hepatitis. Ten additional cases are mentioned in which the patients had received irradiated plasma and whole blood.

2. The pathologic changes found at autopsy in the liver and kidneys of six patients who died are described in some detail.

3. Further clinical evaluation of ultraviolet-irradiated plasma in the prevention of serum hepatitis will be necessary before final conclusions can be drawn.

4. Efforts should be made to avoid the use of a single syringe for multiple injections and the use of improperly sterilized syringes for venipuncture.

5. The potential dangers of serum hepatitis for laboratory workers, technicians, nurses, physicians and undertakers are not to be minimized, and precautions against self inoculation should be taken.

HOMOLOGOUS SERUM JAUNDICE AND ITS RELATION TO METHODS OF PLASMA STORAGE

J GARROTT ALLEN, M D
CAROLYN SYKES, R N
DANIEL M ENERSON, M D
PETER V. MOULDER, M D
RICHARD M ELGHAMMER, M D.
BURTON J. GROSSMAN, M D
CHARLES L. McKEEN, M D
and
NICHOLAS J GALLUZZI, M D
Chicago

The infective agent responsible for homologous serum jaundice or serum hepatitis is thought to be a virus. It is transmitted by transfusion or inoculation in man by human products, particularly by blood, plasma or serum, but it has not been successfully transmitted to other species. The disease has been produced in human volunteers by as little as 0.1 cc. of infected plasma.[1] For this reason, one donor who is a carrier of the disease can infect an entire pool of plasma. It has been recommended that the donor population of pooled plasma not exceed five and that plasma be used only as an emergency measure. As a consequence, plasma is not used as extensively as before. This hazard of pooled plasma must be overcome if it is to be stockpiled and used for civilian defense.

The purpose of this report is twofold first, to call attention to the fact that the current and generally employed methods for the storage of plasma are highly favorable to the preservation of viruses; second, to present data indicating that when plasma is stored in the liquid state without preservatives at temperatures ranging between 80 and 96 F. for three months or longer, homologous serum jaundice is infrequently encountered if indeed it occurs at all Plasma stored in this manner for 18 to 24 months appears as effective for nutritive purposes as when stored for six months or less.

METHODS OF VIRUS PRESERVATION

The principal methods employed for the preservation of viruses are lyophilization, storage at dry ice or deep-freeze temperatures (— 70 to — 20 C), refrigeration (— 4 to + 4 C.) and storage in glycerin. According to Topley and Wilson[2]: "Most viruses appear to be very resistant to cold. Frozen and dried they may live for many months. Survival in distilled water, saline or Ringer's solution varies considerably. In the ice box many viruses will survive a long time, but most of them perish rapidly if kept at room temperature or 37 C." Augmenting this point of view are data we obtained from a survey of the literature on survival characteristics of 33 virus agents pathogenic for man. In every instance in which information was available, lyophilization, freezing and refrigeration favored prolonged virus survival. Storage at room temperature, on the other hand, resulted in loss of activity in a few hours to a few days even though the agent may remain virulent in the lyophilized or frozen state for months to several years.

Lyophilization, deep freezing and refrigeration, which are the best means of preserving virus activity, are also widely employed for the storage of human plasma. This may account for the persistent incidence of homologous jaundice (5 to 10 per cent) which follows transfusion of pooled plasma. A survey of the methods of plasma storage used by a number of observers reporting homologous serum jaundice following plasma transfusion discloses that in every instance the pathogenic product was stored under conditions favorable for the preservation of virus activity. Of historic and practical interest in this connection is the first reported epidemic of serum hepatitis which occurred in the Bremen shipyards in 1883. Vaccination for smallpox with human lymph stored in glycerin resulted in latent icterus in 191 of 1,293 persons treated.[3]

A review of the literature available to us discloses that homologous serum jaundice has been reported[4] from plasma or serum preserved as shown on table 1. It is clearly evident from this table and from the literature pertaining to the survival qualities of other viruses that if the blood product is to be stored in the lyophilized, frozen or refrigerated states it must first be free of all virus contaminants. Failing this, these products must be stored for an undetermined period of time under some condition which is unfavorable for virus preserva-

---

From the Department of Surgery, University of Chicago School of Medicine

Sponsored by the Medical Research and Development Board, Office of the Surgeon General, Department of the Army

[1] (a) Oliphant, J W Jaundice Following the Administration of Human Serum, Bull New York Acad Med **20:** 429, 1944 (b) Paul, J R , Havens, W P , Jr , Sabin, A B , and Philip, C B Transmission Experiments in Serum Jaundice and Infectious Hepatitis, J. A M A. **128:** 911 (July 28) 1945

[2] Topley, W W C , and Wilson, G S Topley and Wilson's Principles of Bacteriology and Immunology, revised by G S Wilson and A. A Miles, ed 3, Baltimore, Williams & Wilkins Company, 1946 p 962

[3] Lurman Eine Icterusepidemie, Berl klin Wchnschr **22:** 20, 1885; quoted by Hirsch, A , Handbook of Geographical and Historical Pathology, translated by C Creighton, London, New Sydenham Society, 1886, vol 3, pp 420 424

[4] (a) McNalty, A S · Acute Infective Jaundice and Administration of Measles Serum, in Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1937, London His Majesty s Stationery Office, 1933, pp 38 39 Propert, S A Hepatitis After Prophylactic Serum, Brit M J **2:** 677, 1938 Jervis, J J , quoted in Memorandum Prepared by Medical Officers of the Ministry of Health, Lancet **1:** 83, 1943 (b) Memorandum Prepared by Medical Officers of the Ministry of Health, Homologous Serum Jaundice, ibid **1:** 83, 1943 (c) Beeson, P B Jaundice Occurring One to Four Months After Transfusion of Blood or Plasma Report of Seven Cases, J. A M A **121:** 1332 (April 24) 1943 (d) Oliphant, J W , Gillian, A G , and Larson, C L Jaundice Following Administration of Human Serum Pub Health Rep **58:** 1233, 1943 (e) Walsh, R J Personal communication to the author (f) Soper, F L , and Smith, H H Yellow Fever Vaccination with Cultivated Virus and Immune and Hyperimmune Serum, Am J Trop Med **18:** 111, 1938 Fox, J P , Manso, C , Penna, H A , and Para, M Observations on Occurrence of Icterus in Brazil Following Vaccination Against Yellow Fever, Am J Hyg **36:** 68, 1942 Bradley, W H , Loutit, J F , and Maunsell, K An Episode of "Homologous Serum Jaundice," Brit M J **2:** 268, 1944 MacCallum, F O , and Bauer, D J Homologous Serum Jaundice Transmission Experiments with Human Volunteers, Lancet **1:** 622, 1944 (g) McGraw, J. J , Strumia, M M , and Burns, E · The Incidence of Post Transfusion Hepatitis, Am J. Clin Path **19:** 1004, 1949 (h) McClure, R D , Hartman, F W , and Mangun, G H : Control of Blood Transfusion Hazards, Ann Surg **131:** 628, 1950. (i) Findlay, G M , MacCallum, F O , and Murgatroyd, F Observations Bearing on Aetiology of Infective Hepatitis (So Called Epidemic Catarrhal Jaundice), Tr Roy Soc Trop Med & Hyg **32:** 575, 1939 Findlay, G M , and MacCallum, F O . Note on Acute Hepatitis and Yellow Fever Immunization, ibid **31:** 297, 1937. Jaundice Following Yellow Fever Vaccination, editorial, J A M A **119:** 1110 (Aug 1) 1942. Sawyer, W A , and others: Jaundice in Army Personnel in Western Region of United States and Its Relation to Vaccination Against Yellow Fever, Am J Hyg. **40:** 35, 1944 Hayward, G W Intravenous Serum in Treatment of Peripheral Vascular Disease, Brit M J **1:** 285, 1942 Morgan, H V , and Williamson, D A J . Jaundice Following Administration of Human Blood Products, ibid **1:** 750, 1943 Rappaport, E M Hepatitis Following Blood or Plasma Transfusions Observations in 33 Cases, J A M A **128:** 932 (July 28) 1945 Spurling, N , Shone, J , and Vaughan, J Incidence, Incubation Period, and Symptomatology of Homologous Serum Jaundice, Brit M. J **2:** 409, 1946 (j) Brightman, I J , and Korns, R F Homologous Serum Jaundice in Recipients of Pooled Plasma, J A M A **135:** 268, 1947. (k) Rosenthal, N , Bassen, F A , and Michael, S R Probable Transmission of Viral Hepatitis by Ultraviolet Irradiated Plasma, ibid **144:** 224 (Sept 16) 1950 Barnett, R N , Fox, R A , and Snavely, J G Hepatitis Following the Use of Irradiated Human Plasma, ibid **144:** 226 (Sept 16) 1950 James, G ; Korns R F , and Wright, A W Homologous Serum Jaundice Associated with Irradiated Plasma, ibid **144:** 228 (Sept 16) 1950 Neefe, J R ; Gellis, S S , and Stokes, J , Jr Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis Studies in Volunteers Bearing on Immunological and Other Characteristics of Etiological Agents, Am J. Med **1:** 3, 1946 Havens, W P , Jr Epidemiological Studies on Infectious Hepatitis, Am J Pub Health **36:** 37, 1946 Havens, W P , Jr.: Properties of Etiologic Agent of Infectious Hepatitis, Proc Soc Exper. Biol & Med **58:** 203, 1945 Scheinberg, I H , Kinney, T D , and Janeway, C A Homologous Serum Jaundice Problem in Operation of Blood Banks, J A M A **134:** 841, 1947 Robinson, J W , Twadell, D N , and Havens, W P , Jr Homologous Serum Hepatitis, Ann Int. Med **32:** 1015, 1950 (l) Neefe, J R , Stokes, J , Jr , Reinhold, J G., and Lukens, F. D W · Hepatitis Due to Injection of Homologous Blood Products in Human Volunteers, J Clin Investigation **23:** 836, 1944. (m) Lurman[3]

the winter seasons are regularly 78 to 82 F. The temperature is more variable during the seasons of late spring, summer and early autumn, when the room temperature is a function of the weather. In the interest of economy of space, representative daily room temperature readings are not included. Storage of plasma under these conditions was originally begun because refrigeration facilities were not available when our blood bank was started in 1942. This practice has been continued because it has proved satisfactory.

TABLE 3.—*Age Distribution of Plasma Transfused*

Age in Days	Units Transfused	Age in Days	Units Transfused	Age in Days	Units Transfused	Age in Days	Units Transfused
35-44	10	95-124	650	335-394	378	935-1 054	14
45-54	60	125-154	768	395 454	230	1,055-1,174	4
55 64	170	155-184	778	455-514	90	Not recorded	80
65-74	250	185 214	712	515-574	74	Total	6,502
75-84	330	215-274	1,130	575-754	114	....	...
85-94	362	275-334	262	755-934	36	....	...

From Sept. 1, 1942 to June 1, 1950, a total of 864 patients received 6,502 of the 9,406 units of blood from which 356 pools of plasma were made. Samples from all these pools have been administered, although some units until recently were discarded after the one year arbitrary expiration date. Many of these patients received plasma from several pools and were thus exposed to a fairly large donor population. The average donor population of each pool was 26. Each patient received, on the average, plasma from 44 donors because generally more than one unit of plasma was given, and often these units were from different pools.

From the beginning of our blood bank, an attempt was made to restrict the administration of any pool of plasma until it had aged two to three months, in order that some deterioration in isoagglutinin titer might occur. Except when clinical demands were great, this was usually possible. Table 3 records the ages of all the various units of plasma at the time of administration.

An analysis of the end results of plasma transfusion with reference to the occurrence of homologous serum jaundice had to be the subject of search of each patient's clinical record, as no patients with this complication from our plasma had come to the attention of either the attending service or the blood bank. This record search was extended to include also most of those patients who had received only blood. Thirteen of the

TABLE 4.—*Number of Records of Patients Receiving Transfusions That Were Reviewed and Duration of Follow-Up*

	1 Mo.*	1 Mo.	2 Mo.	3 Mo.	4 Mo.	5 Mo.	6 Mo.†
		840	452	285	233	458	2,790
			[illegible]	[illegible]	4.2%	8.2%	50.1%

ma.

CAS

ilium a

1950 and

plasma on

The ages of

of administrat

pools was 60.

2,000, 1,000, 3,000

19 and 20, on which

Subsequent transfusio

500 cc. on January 21,

charged in good conditio

26, 1950 with nausea, vom

jaundice of three days' du

serum jaundice was made, a

received blood transfusions fro

our plasma. Requestioning of do

disclosed that two of them had had

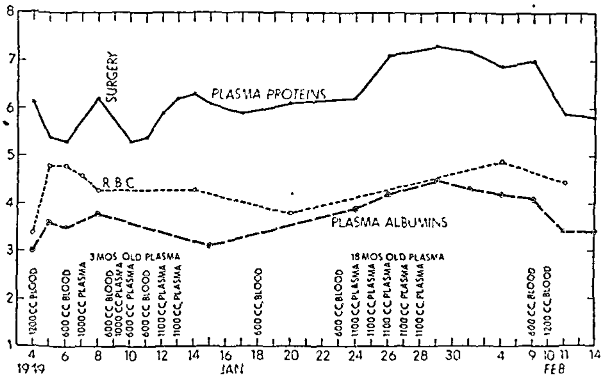
remaining units of these plasma p

instance to 17 patients as 250 cc. units

time the survey was made. The charts of the 864 patients who received plasma were reviewed later for a second time. The length of the follow-up period for each patient was tabulated, and these data are presented in table 4.

The over-all incidence of homologous serum jaundice for pooled plasma is reported by various workers as between 2.4 and 12 per cent of the patients transfused. Perhaps the most reliable estimate made in this country is the careful survey of Brightman and Korns[4j] in which at least 29 of 649 patients receiving war surplus lyophilized plasma were considered to have contracted the disease. The incidence of the disease is much higher (23 to 100 per cent) when computed on the basis of the patients receiving units from any one infected pool (table 1).

A number of possible mathematical means may be employed for estimating the number of patients receiving our plasma in whom homologous serum jaundice could be expected to develop, but none is without the criticism that the data would be handled with some arbitrary advantage. The basic facts in our data are: first, 23,320 whole blood transfusions were given to 6,503 patients; second, 9,406 plasmas were pooled into 356 pools, so that each final plasma unit contained on the average 26 donors. Of this plasma, 6,502 units were given to 864 patients, who on the average received plasma from 44 donors based on an analysis of the individual's plasma transfusion record as the plasma was actually given. Of this latter group, 212 patients did not receive blood in connection with their plasma therapy. The homologous serum jaundice syndrome appeared in 14 patients receiving blood alone. Three more patients, given both blood and our plasma, also exhibited this syndrome, although in each of these three patients it seemed unlikely that our plasma was the cause of their infection. None of the 212 patients who received our plasma *alone* were known to have manifested the disease.



Response of plasma protein concentration to administration of plasma stored 18 months at room temperature, unit 460129. Protein level is shown in grams per 100 cc., red blood cells in millions per cubic millimeter.

VE VALUE OF PLASMA STORED AT ROOM TEMPERATURE

is slowly metabolized it is the most
means available for providing the
protein.[5] The accompanying
hich shows the capacity of
oein concentration after

---

and Phemister, D. B.:
, Deficiencies in Sur

CASE 7.—P. S., a man aged 70 with a squamous cell carcinoma of the skin, underwent operative intervention on Dec. 2, 1944, and 600 cc. of blood was given at that time. Two other blood transfusions were given, one on December 18 and one on December 26. On May 1, 1945 the patient had symptoms of hepatitis with mild icterus and lack of appetite; he required three weeks' hospitalization. Complete recovery was made. A history of previous hepatitis was not elicited from the donors. Plasma was not given.

CASE 8.—E. M., a woman aged 50, was admitted with a diagnosis of Hodgkin's disease on Jan. 31, 1947. One blood transfusion was given March 13, and the patient was discharged March 16, 1947. Jaundice was first noted July 28, 1947, preceded by anorexia of ten days. No treatment of Hodgkin's disease was actively conducted for three months before the onset of jaundice. The jaundice receded and disappeared with restoration of appetite by August 14. The patient made a recovery from hepatitis and is still alive. Plasma was not given.

CASE 9.—H. B., a man aged 72, was given three blood transfusions for anemia, one on Nov. 5, 1946, the second on November 19 and the third on December 17. Onset of hepatitis with icterus occurred March 5, 1947. The patient recovered after three weeks. Subsequently one blood donor gave a history of jaundice three months before giving blood for this patient. Plasma was not administered.

CASE 10.—A. C., a woman aged 53, her condition diagnosed as Hodgkin's disease, was given blood transfusions on January 15, 17, 18 and 21 in 1949. She was readmitted to the hospital March 14, 1949 with jaundice, nausea and vomiting. She was given a course of nitrogen mustard therapy totaling 28.8 mg., started March 30. She continued to go downhill, although jaundice cleared. She expired on April 7, 1949. Plasma was not given. Liver sections showed a decided increase of portal fibrous tissue without extension to form lobular divisions. Only occasionally was Hodgkin's disease in evidence. Leukocytes and round cell infiltration were present in most areas.

CASE 11.—R. W., a man aged 60, was admitted Nov. 21, 1947 with pyogenic arthritis. Blood transfusions were given November 26, and December 6, 9 and 11. On March 8, 1948, the urine darkened and there developed nausea, lack of appetite and jaundice. This gradually cleared up over four weeks' time, and the patient was well as of April 19, 1950. Plasma was not given.

CASE 12.—F. H., a man aged 64, with a diagnosis of carcinoma of the descending colon, underwent operation on Dec. 16, 1948 and received two units of blood. His convalescence was uneventful, and he was discharged on the twelfth day. He was readmitted May 8, 1949 with onset of anorexia, nausea, vomiting and jaundice of three days' duration. Needle biopsy of the liver was compatible with hepatitis; the diagnosis was presumed to be homologous serum jaundice. The patient improved, and he was discharged at the end of two weeks and is well at present. He did not receive plasma.

CASE 13.—E. G., a woman aged 47, with a diagnosis of chronic lymphatic leukemia, received five blood transfusions between Sept. 15 and Dec. 20, 1949. Anorexia, nausea and icterus developed on Jan. 28, 1950. Donors were interrogated but without revealing any possible source of infection. Her course in the hospital was uneventful and her recovery from hepatitis was complete. During this hospital stay she did not receive antileukemic therapy. Plasma was not given.

CASE 14.—L. G., a woman aged 60, with a diagnosis of carcinoids of small intestine, received five blood transfusions beginning on October 4 and ending November 7, 1949. No plasma was given. On Jan. 15, 1950 the patient developed anorexia, nausea and vomiting, and within a day or two, jaundice appeared which subsided spontaneously over a period of three to four weeks. Interrogation of the blood donors disclosed no evidence of previous hepatitis.

CASE 15.—J. S., a man aged 60, was admitted with a diagnosis of duodenal ulcer. He received three blood transfusions Dec. 15, 1947 in the treatment of an acute episode of gastrointestinal bleeding presumed to be from a duodenal ulcer. No plasma was given. He was admitted for surgery on March 15, 1948 and, on the day surgery was planned, icterus was noted. Aside from jaundice, the patient was otherwise asymptomatic. Jaundice cleared in three weeks. No surgery was performed. Investigation of the donors did not disclose the source of infection.

CASE 16.—E. F., a woman aged 60, was admitted March 19, 1950 with a diagnosis of hypernephroma of the left kidney, an adenoma malignum of the descending colon and diabetes mellitus. On March 27 the left kidney was removed and a local resection of the descending colon was performed. She received one 500 cc. blood transfusion March 22 and two blood transfusions of 500 cc. each March 27 during operation. Her recovery was uneventful, and she was discharged April 9. She was readmitted May 6, 1950 complaining of anorexia, nausea, generalized pruritus and jaundice of three to ten days' duration. A diagnosis of homologous serum jaundice was made, and conformation of hepatitis was obtained by needle biopsy of the liver. Jaundice subsided, and she was discharged May 18, 1950. The three donors were recalled, but no history of hepatitis or jaundice was obtained. Plasma was not given.

CASE 17.—V. S., a woman aged 33, on June 21, 1950 had a cesarean hysterectomy with right salpingo-oophorectomy. Her course was complicated by pelvic vein thrombosis. She received one 500 cc. blood transfusion on the day of surgical intervention. Her recovery was otherwise uneventful, and she was discharged July 6 in good condition. She was readmitted on July 25, 1950 with complaints of epigastric distress, anorexia, nausea and vomiting of less than one week's duration. Homologous serum jaundice was suspected, and the diagnosis of hepatitis was confirmed by needle biopsy. Her course improved and jaundice disappeared by August 12. She was discharged on Aug. 15, 1950. She did not receive plasma. On requestioning the donor, no history of hepatitis or jaundice was obtained.

PLASMA TRANSFUSION

Save for the three patients whose clinical summaries are presented in case reports 1, 2 and 3, we have not encountered any other patients receiving our plasma who are known to have had the homologous serum jaundice syndrome. Although our plasma cannot be completely excluded as the cause of infection in these three patients, it seems more likely that whole blood or lyophilized plasma was the icterogenic agent concerned. In support of this contention are the important facts that in none of the other 39 patients receiving the remaining plasma units from these pools did there develop recognizable latent hepatitis or icterus and that at least one blood donor to each of these three patients gave a history of previous hepatitis and jaundice.

Because of the relatively large number of patients transfused, 6,503 with blood alone and 864 with our plasma with or without blood, we believe that we should have encountered some definite evidence of transmission of the disease by our plasma unless the unusual means of its storage influenced the virulence of the virus. The method of our plasma preparation from the beginning of the Blood Bank, Sept. 15, 1942, has been the same and is as follows:

> Plasma is prepared from outdated blood (five days or older). It is separated from the sedimented red cell mass and thereafter stored at room temperature until used. Each blood transfusion is drawn into a 75 cc. aqueous solution of sodium citrate (2 Gm.) and is stored at refrigeration temperatures (4 to 8 C.) until transfused as such or converted into plasma, pooling generally with plasma from 25 to 30 other donors. After five days all bloods are made into plasma. This plasma is stored at room temperature without preservatives.

The temperature of the room in which the plasma is stored is higher than might be expected, as the liquid plasma is stored within 2 feet of the ceiling and is in the same room where blood bank equipment is autoclaved. In addition, a 30 gallon steam still also is located there and is in continuous operation 12 hours a day, six days a week. Temperatures recorded during tion. If the latter procedure is followed, the method of storage must not destroy the activity of the product as far as its therapeutic value is concerned.

HOMOLOGOUS SERUM JAUNDICE AT THE UNIVERSITY OF CHICAGO CLINICS

BLOOD TRANSFUSION

As the members of the medical profession became generally aware of the possibility that delayed jaundice after transfusion was due to the transmission of a virus contained in the transfused human product, they began to make the diagnosis of homologous serum jaundice in patients in whom there developed latent icterus after transfusion. During the past eight years 33 of our patients have returned with jaundice and this diagnosis has been made. Sixteen of this group had either a previously established primary liver disorder or metastatic liver tumor and are therefore excluded from this series unless biopsy or autopsy evidence of hepatitis could be established. None of these 16 patients had received our University of Chicago plasma. The remaining 17 patients are considered as having acquired the disease, and their cases are reported below and summarized in table 2.

TABLE 1.—*Homologous Serum Jaundice and Method of Plasma Storage*

Method of Storage	Number of Reports
Glycerinized human lymph[3]	1
Refrigerated (footnote 4, parts a to e, inclusive)	9
Frozen (footnote 4, parts d, f, g and h)	7
Lyophilized (footnote 4, parts b and i to k, inclusive)	18
Prolonged room temperature storage	
(a) In lyophilized state[4d, i]	2
(b) In liquid state	0
Total number of reports reviewed	37

TABLE 2.—*Data Relative to Blood and Plasma Transfusions from Sept. 15, 1942 to June 1, 1950*

Type of Transfusion	Total No. of Units Transfused	Average No. of Donors of Plasma Each Patient Received	Known No. of Patients in Whom Homologous Serum Jaundice Developed	No. of Patients Transfused
Blood only	23,320	3.3	14	6,503
Plasma only	1,356	44	0	212
Blood and plasma	Blood 3,332 Plasma 5,066	Blood 4.8 Plasma 48	3	652

CASE 1.—A. C., a man aged 47, had chondrosarcoma of the ilium and bleeding duodenal ulcer. He was admitted Jan. 15, 1950 and was transfused with four units (1,000 cc.) of our plasma on the same day. This was from two separate pools. The ages of these pools were 145 days and 182 days at the time of administration. The total donor population of these two pools was 60. Thereafter the patient was given whole blood, 2,000, 1,000, 3,000 and 2,000 cc., respectively, on January 16, 17, 19 and 20, on which day a subtotal gastrectomy was performed. Subsequent transfusions were as follows: 3,250, 500, 500 and 500 cc. on January 21, 26, 28 and 31, respectively. He was discharged in good condition February 19 and readmitted March 26, 1950 with nausea, vomiting and anorexia accompanied with jaundice of three days' duration. Diagnosis of homologous serum jaundice was made, and he recovered. In all he had received blood transfusions from 39 donors and four units of our plasma. Requestioning of donors used for blood transfusion disclosed that two of them had had symptoms of jaundice. The remaining units of these plasma pools were given, in one instance to 17 patients as 250 cc. units and in the second case to eight patients as 500 cc. units. These patients were reexamined but no evidence of jaundice or symptoms of hepatitis developed, although two had died within less than two months of other disease.

CASE 2.—M. A., a woman aged 48, was admitted with a diagnosis of ulcerative colitis. In 1948 she received blood transfusions on March 5, 23, 24, 25 and 31, April 1, 2, 3, 4 and 20, May 17 and 25 and June 20 and 22. She received one 500 cc. transfusion of our plasma on March 24 with a donor population of 34 donors. The age of this plasma unit was 143 days. Thereafter she was given war surplus lyophilized plasma on March 25, 26, 27, 28, 29, 30 and 31, April 1, 2, 3, 4 and 5 and 1,200 cc. on April 6 and 7. On August 21 symptoms of hepatitis began. Jaundice was noted the following day. The patient became oliguric but began to improve September 1, although icterus was present until September 16. She was discharged on her forty-third hospital day (October 10) and has remained well since. In all, 11,000 cc. of lyophilized plasma were given. The remaining units of our plasma pool were given to nine patients who were followed for six months but in whom symptoms of hepatitis or jaundice did not develop; one other patient receiving this plasma died two weeks later of other disease.

CASE 3.—J. M., a man aged 19, whose diagnosis was trabecular reticulum cell sarcoma of the left iliofemoral chain of glands, had an operation for excision of this chain of glands with resection of external iliac and proximal portions of superficial and deep femoral veins on June 22, 1949. During the operation he received four transfusions of whole blood and four units of our plasma from two different pools whose combined donor population was 55. The ages of the plasma units were 215 and 392 days. An additional 500 cc. blood transfusion was given July 5, and recovery was uneventful. The patient was discharged on August 20 and readmitted October 12 with a 10 day history of jaundice, anorexia, nausea and some vomiting. This slowly improved over a period of three weeks. Two needle biopsies of the liver were done and showed severe hepatitis. One performed October 15 and a second performed October 29 disclosed considerable improvement since the first examination. One of three blood donors who were recontacted gave a history of jaundice 40 years before. The other two donors did not return. The remainder of each plasma pool was administered as 500 cc. units to six patients and eight patients, respectively, in none of whom symptoms of hepatitis had developed within a six month follow-up period.

CASE 4.—K. H., a woman aged 82, was first admitted to Billings Hospital in November 1948 and was found to have a gastric ulcer. Subtotal gastrectomy was done Dec. 8, 1948. She received two whole blood transfusions preoperatively, one on November 27 and one November 28. On February 1 jaundice developed. This progressed until the death of the patient. Necropsy disclosed evidence of hepatitis.

CASE 5.—F. S., a patient aged 64, was admitted January 2, 1950 with carcinoma of rectum and sigmoid with intestinal obstruction. A combined abdominal-perineal resection was done and three transfusions totaling 1,650 cc. of blood were given. Three blood transfusions were also given January 5, 12 and 26 during the postoperative period. On March 10 the patient manifested painless jaundice with acholic stools and anorexia but without fever. This subsided after three weeks, and since then the patient has been well. Plasma was not given.

CASE 6.—C. J., a man aged 64, underwent operation for pyogenic arthritis of two joints on April 29, 1944. Two days prior to operation, one transfusion of whole blood was given. Four weeks later a transurethral resection was done because of benign prostatic hypertrophy. Seventy-two days after the transfusion the man was readmitted because of headache and dizziness. Two days later he became comatose, bleeding from the nose and intestinal tract; he died on the third hospital day. At autopsy the liver weighed 1,300 Gm. and was yellow with increased prominence of globular markings. Microscopic examination revealed fine granular fat dispersed throughout the entire liver section with nearly complete destruction of the lobular architecture, except in the periportal areas where abortive attempt at regeneration was evident. Numerous round cell infiltrations were evident throughout the liver lobules and periportal areas. The blood donor was requestioned, but no history of hepatitis could be elicited. Plasma was not given.

CASE 7.—P. S., a man aged 70 with a squamous cell carcinoma of the skin, underwent operative intervention on Dec. 2, 1944, and 600 cc. of blood was given at that time. Two other blood transfusions were given, one on December 18 and one on December 26. On May 1, 1945 the patient had symptoms of hepatitis with mild icterus and lack of appetite; he required three weeks' hospitalization. Complete recovery was made. A history of previous hepatitis was not elicited from the donors. Plasma was not given.

CASE 8.—E. M., a woman aged 50, was admitted with a diagnosis of Hodgkin's disease on Jan. 31, 1947. One blood transfusion was given March 13, and the patient was discharged March 16, 1947. Jaundice was first noted July 28, 1947, preceded by anorexia of ten days. No treatment of Hodgkin's disease was actively conducted for three months before the onset of jaundice. The jaundice receded and disappeared with restoration of appetite by August 14. The patient made a recovery from hepatitis and is still alive. Plasma was not given.

CASE 9.—H. B., a man aged 72, was given three blood transfusions for anemia, one on Nov. 5, 1946, the second on November 19 and the third on December 17. Onset of hepatitis with icterus occurred March 5, 1947. The patient recovered after three weeks. Subsequently one blood donor gave a history of jaundice three months before giving blood for this patient. Plasma was not administered.

CASE 10.—A. C., a woman aged 53, her condition diagnosed as Hodgkin's disease, was given blood transfusions on January 15, 17, 18 and 21 in 1949. She was readmitted to the hospital March 14, 1949 with jaundice, nausea and vomiting. She was given a course of nitrogen mustard therapy totaling 28.8 mg., started March 30. She continued to go downhill, although jaundice cleared. She expired on April 7, 1949. Plasma was not given. Liver sections showed a decided increase of portal fibrous tissue without extension to form lobular divisions. Only occasionally was Hodgkin's disease in evidence. Leukocytes and round cell infiltration were present in most areas.

CASE 11.—R. W., a man aged 60, was admitted Nov. 21, 1947 with pyogenic arthritis. Blood transfusions were given November 26, and December 6, 9 and 11. On March 8, 1948, the urine darkened and there developed nausea, lack of appetite and jaundice. This gradually cleared up over four weeks' time, and the patient was well as of April 19, 1950. Plasma was not given.

CASE 12.—F. H., a man aged 64, with a diagnosis of carcinoma of the descending colon, underwent operation on Dec. 16, 1948 and received two units of blood. His convalescence was uneventful, and he was discharged on the twelfth day. He was readmitted May 8, 1949 with onset of anorexia, nausea, vomiting and jaundice of three days' duration. Needle biopsy of the liver was compatible with hepatitis; the diagnosis was presumed to be homologous serum jaundice. The patient improved, and he was discharged at the end of two weeks and is well at present. He did not receive plasma.

CASE 13.—E. G., a woman aged 47, with a diagnosis of chronic lymphatic leukemia, received five blood transfusions between Sept. 15 and Dec. 20, 1949. Anorexia, nausea and icterus developed on Jan. 28, 1950. Donors were interrogated but without revealing any possible source of infection. Her course in the hospital was uneventful and her recovery from hepatitis was complete. During this hospital stay she did not receive antileukemic therapy. Plasma was not given.

CASE 14.—L. G., a woman aged 60, with a diagnosis of carcinoids of small intestine, received five blood transfusions beginning on October 4 and ending November 7, 1949. No plasma was given. On Jan. 15, 1950 the patient developed anorexia, nausea and vomiting, and within a day or two, jaundice appeared which subsided spontaneously over a period of three to four weeks. Interrogation of the blood donors disclosed no evidence of previous hepatitis.

CASE 15.—J. S., a man aged 60, was admitted with a diagnosis of duodenal ulcer. He received three blood transfusions Dec. 15, 1947 in the treatment of an acute episode of gastrointestinal bleeding presumed to be from a duodenal ulcer. No plasma was given. He was admitted for surgery on March 15, 1948 and, on the day surgery was planned, icterus was noted. Aside from jaundice, the patient was otherwise asymptomatic. Jaundice cleared in three weeks. No surgery was performed. Investigation of the donors did not disclose the source of infection.

CASE 16.—E. F., a woman aged 60, was admitted March 19, 1950 with a diagnosis of hypernephroma of the left kidney, an adenoma malignum of the descending colon and diabetes mellitus. On March 27 the left kidney was removed and a local resection of the descending colon was performed. She received one 500 cc. blood transfusion March 22 and two blood transfusions of 500 cc. each March 27 during operation. Her recovery was uneventful, and she was discharged April 9. She was readmitted May 6, 1950 complaining of anorexia, nausea, generalized pruritus and jaundice of three to ten days' duration. A diagnosis of homologous serum jaundice was made, and conformation of hepatitis was obtained by needle biopsy of the liver. Jaundice subsided, and she was discharged May 18, 1950. The three donors were recalled, but no history of hepatitis or jaundice was obtained. Plasma was not given.

CASE 17.—V. S., a woman aged 33, on June 21, 1950 had a cesarean hysterectomy with right salpingo-oophorectomy. Her course was complicated by pelvic vein thrombosis. She received one 500 cc. blood transfusion on the day of surgical intervention. Her recovery was otherwise uneventful, and she was discharged July 6 in good condition. She was readmitted on July 25, 1950 with complaints of epigastric distress, anorexia, nausea and vomiting of less than one week's duration. Homologous serum jaundice was suspected, and the diagnosis of hepatitis was confirmed by needle biopsy. Her course improved and jaundice disappeared by August 12. She was discharged on Aug. 15, 1950. She did not receive plasma. On requestioning the donor, no history of hepatitis or jaundice was obtained.

PLASMA TRANSFUSION

Save for the three patients whose clinical summaries are presented in case reports 1, 2 and 3, we have not encountered any other patients receiving our plasma who are known to have had the homologous serum jaundice syndrome. Although our plasma cannot be completely excluded as the cause of infection in these three patients, it seems more likely that whole blood or lyophilized plasma was the icterogenic agent concerned. In support of this contention are the important facts that in none of the other 39 patients receiving the remaining plasma units from these pools did there develop recognizable latent hepatitis or icterus and that at least one blood donor to each of these three patients gave a history of previous hepatitis and jaundice.

Because of the relatively large number of patients transfused, 6,503 with blood alone and 864 with our plasma with or without blood, we believe that we should have encountered some definite evidence of transmission of the disease by our plasma unless the unusual means of its storage influenced the virulence of the virus. The method of our plasma preparation from the beginning of the Blood Bank, Sept. 15, 1942, has been the same and is as follows:

> Plasma is prepared from outdated blood (five days or older). It is separated from the sedimented red cell mass and thereafter stored at room temperature until used. Each blood transfusion is drawn into a 75 cc. aqueous solution of sodium citrate (2 Gm.) and is stored at refrigeration temperatures (4 to 8 C.) until transfused as such or converted into plasma, pooling generally with plasma from 25 to 30 other donors. After five days all bloods are made into plasma. This plasma is stored at room temperature without preservatives.

The temperature of the room in which the plasma is stored is higher than might be expected, as the liquid plasma is stored within 2 feet of the ceiling and is in the same room where blood bank equipment is autoclaved. In addition, a 30 gallon steam still also is located there and is in continuous operation 12 hours a day, six days a week. Temperatures recorded during the winter seasons are regularly 78 to 82 F. The temperature is more variable during the seasons of late spring, summer and early autumn, when the room temperature is a function of the weather. In the interest of economy of space, representative daily room temperature readings are not included. Storage of plasma under these conditions was originally begun because refrigeration facilities were not available when our blood bank was started in 1942. This practice has been continued because it has proved satisfactory.

TABLE 3.—*Age Distribution of Plasma Transfused*

Age in Days	Units Transfused	Age in Days	Units Transfused	Age in Days	Units Transfused	Age in Days	Units Transfused
35-44	10	95-124	650	335-394	378	935-1,054	14
45-54	60	125-154	703	395-454	230	1,055-1,174	4
55-64	170	155-184	778	455-514	90	Not recorded	80
65-74	250	185-214	712	515-574	74	Total	6,502
75-84	[illegible]	215-274	1,130	575-754	114	....	...
85-94	262	275-334	262	755-934	36	....	...

From Sept. 1, 1942 to June 1, 1950, a total of 864 patients received 6,502 of the 9,406 units of blood from which 356 pools of plasma were made. Samples from all these pools have been administered, although some units until recently were discarded after the one year arbitrary expiration date. Many of these patients received plasma from several pools and were thus exposed to a fairly large donor population. The average donor population of each pool was 26. Each patient received, on the average, plasma from 44 donors because generally more than one unit of plasma was given, and often these units were from different pools.

From the beginning of our blood bank, an attempt was made to restrict the administration of any pool of plasma until it had aged two to three months, in order that some deterioration in isoagglutinin titer might occur. Except when clinical demands were great, this was usually possible. Table 3 records the ages of all the various units of plasma at the time of administration.

An analysis of the end results of plasma transfusion with reference to the occurrence of homologous serum jaundice had to be the subject of search of each patient's clinical record, as no patients with this complication from our plasma had come to the attention of either the attending service or the blood bank. This record search was extended to include also most of those patients who had received only blood. Thirteen of the 14 patients receiving blood only had been called to our attention by the attending service. Only one patient (case 11) was brought to light by the record search.

TABLE 4.—*Number of Records of Patients Receiving Transfusions That Were Reviewed and Duration of Follow-Up*

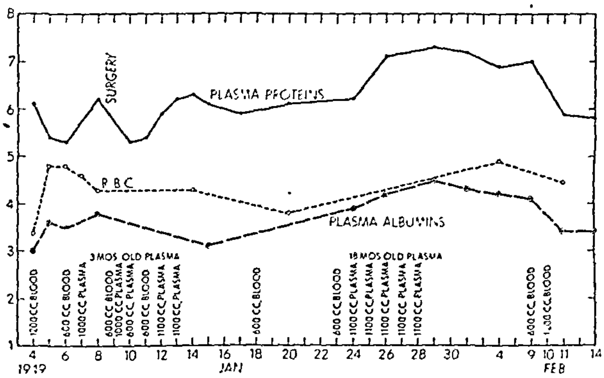
	1 Mo.*	1 Mo.	2 Mo.	3 Mo.	4 Mo.	5 Mo.	6 Mo.†
Blood only							
No. of records............	508	840	452	285	233	458	2,790
Percentage of total......	9.1%	15.1%	8.1%	5.1%	4.2%	8.2%	50.1%
Blood and/or plasma							
No. of records............	71	36	53	54	73	97	480
Percentage of total......	8.2%	4.2%	6.1%	6.3%	8.4%	11.2%	55.6%

* Died or followed less than 30 days. † Six months or longer.

Of 7,367 patients transfused with blood and/or our plasma, 5,566 records of patients receiving only blood were reviewed. All the charts of the 864 patients receiving our plasma were reviewed. Nine hundred and thirty-seven charts were either in active clinic use or had been microfilmed and were not available at the time the survey was made. The charts of the 864 patients who received plasma were reviewed later for a second time. The length of the follow-up period for each patient was tabulated, and these data are presented in table 4.

The over-all incidence of homologous serum jaundice for pooled plasma is reported by various workers as between 2.4 and 12 per cent of the patients transfused. Perhaps the most reliable estimate made in this country is the careful survey of Brightman and Korns [41] in which at least 29 of 649 patients receiving war surplus lyophilized plasma were considered to have contracted the disease. The incidence of the disease is much higher (23 to 100 per cent) when computed on the basis of the patients receiving units from any one infected pool (table 1).

A number of possible mathematical means may be employed for estimating the number of patients receiving our plasma in whom homologous serum jaundice could be expected to develop, but none is without the criticism that the data would be handled with some arbitrary advantage. The basic facts in our data are: *first, 23,320 whole blood transfusions were given to* 6,503 patients; second, 9,406 plasmas were pooled into 356 pools, so that each final plasma unit contained on the average 26 donors. Of this plasma, 6,502 units were given to 864 patients, who on the average received plasma from 44 donors based on an analysis of the individual's plasma transfusion record as the plasma was actually given. Of this latter group, 212 patients did not receive blood in connection with their plasma therapy. The homologous serum jaundice syndrome appeared in 14 patients receiving blood alone. Three more patients, given both blood and our plasma, also exhibited this syndrome, although in each of these three patients it seemed unlikely that our plasma was the cause of their infection. None of the 212 patients who received our plasma alone were known to have manifested the disease.



Response of plasma protein concentration to administration of plasma stored 18 months at room temperature, unit 460129. Protein level is shown in grams per 100 cc., red blood cells in millions per cubic millimeter.

NUTRITIVE VALUE OF PLASMA STORED AT ROOM TEMPERATURE

Because plasma is slowly metabolized it is the most valuable and effective means available for providing the patient with parenteral protein.[5] The accompanying illustration presents data which shows the capacity of plasma to elevate the plasma protein concentration after it has been stored 18 months to two years at room temperature in the liquid state. In two other instances this plasma was the only plasma administered, and similar responses in plasma protein concentration were achieved. Metabolic studies were performed and satisfactory positive nitrogen balances were obtained. The plasma protein responses were essentially the same as reported in previous studies from this laboratory, in which the plasma administered had been stored at room temperature for three to twelve months before use.[6]

---

[5] Allen, J. G.; Egner, W.; Brandt, M. B., and Phemister, D. B.: Use of Blood and Plasma in Correction of Protein Deficiencies in Surgical Patients, Ann. Surg. **131:** 1, 1950.

COMMENT

To one who is cognizant that lyophilizing, freezing and refrigeration are the best means available for the preservation of virus activity, it is not surprising that when these same procedures are employed in the preservation of plasma the activity of the virus of homologous serum jaundice should also be preserved. The question arises, however, if this is true why are other virus diseases not transmitted under these same conditions? The answer probably lies in certain characteristics almost unique with the virus of homologous serum jaundice. Most other viruses pathogenic for man are present in the blood stream only a few days, and during this time the person is ill and therefore does not give blood. The virus of homologous serum jaundice, however, can be present in the blood stream for many weeks and at a time when the person is in apparently good health; hence, these persons are not rejected as donors.

Another pertinent problem concerns the known ability of the virus of homologous serum jaundice to resist various forms of physical exposure. For example, it is known that this virus will resist temperature of 56 to 60 C. for at least 30 minutes; that it will survive temperatures of 4 C. for long periods of time and temperatures of — 10 to — 70 C. for one to two and a half years.[7] At room temperature, but in the lyophilized state, the virus maintains its activity for at least a year.[10] It also survives in serum, refrigerated or frozen, with or without thimerosal (merthiolate®) concentrations of 1 : 1,000 to 1 : 2,000 with equal parts of phenol, and it maintains its activity in 0.5 per cent ether and in 0.2 per cent concentrations of tricresol at similar temperatures.[7] It is inactivated by exposure to ultraviolet light and heating at 60 C. for 10 hours. This virus is one of the most stable and resistant of all known viruses.

With these points of view in mind, is it possible that the virus of homologous serum jaundice can be inactivated simply by prolonged storage in a liquid cell-free state, in a temperature environment of the type employed in this report? According to Havens[7] the virus may remain virulent in the lyophilized state for one to four and a half years but becomes inactive after five years. Undoubtedly, if the virus will "die out" after prolonged storage under conditions favorable to virus activity, it will "die out" more rapidly under less favorable conditions. Our data suggest that the virus of homologous serum jaundice does not remain pathogenic in liquid cell-free plasma at temperatures ranging between 78 and 96 F. for more than three months. However, if this is true, the data do not tell us the minimum temperature or storage period at which this apparent inactivation occurs.

Since this study rests entirely on data obtained from a record search and from complaints of previously transfused patients, it is open to the criticism that a personal inquiry into the subsequent course of each patient with reference to possible latent homologous serum jaundice was not made. Undoubtedly, some patients were missed in a project of this magnitude. On the other hand, 14 patients who received only blood, five days old or less, manifested a syndrome that seemed compatible with homologous serum jaundice. Since nearly one fourth of all of our blood was converted into plasma, each pool containing on the average the blood of 26 donors and the average patient receiving a total plasma donor population of 44, it is evident that we could expect some homologous serum jaundice to develop from plasma. This does not appear to have happened. These observations differ from those of all other investigators "who have found the incidence of hepatitis following pooled plasma transfusion many times greater than following transfusion of blood."[4g]

There is no reason to suspect that the patients who received our plasma were immune to homologous serum jaundice, or, for that matter, immunized against a return to our clinic to an extent greater than were those who received our whole blood. The only logical conclusion is that the susceptibility to homologous serum jaundice from our plasma was less than that from our whole blood. As far as we know, this is the only report in which the incidence of homologous serum jaundice following plasma transfusion was less than that following blood transfusion.

Although it is reasonably certain that the 17 patients whose cases are reported herein had hepatitis with jaundice, it cannot be stated that in every instance the jaundice and hepatitis were transmitted by blood. The possibility of sporadic or endemic infectious hepatitis as the primary cause of their disease cannot be excluded. It is not yet possible to distinguish accurately between homologous serum jaundice and endemic hepatitis in patients who have received parenteral human products. However, since all the previous reports also are open to the same criticism, we believe that this objection has no special significance in connection with our data.

It appears likely that the incidence of homologous serum jaundice as indicated by our record search is a minimum figure, for undoubtedly some of our patients in whom latent icterus developed were treated elsewhere or failed to report for medical attention at all. It must be borne in mind in estimating the incidence of any infectious disease that the results obtained are measured in terms of the resistance of the host and the virulence of the organism. The absence or low incidence of the disease in patients receiving our plasma was probably the result of a reduced virulence of the organism rather than an increased resistance on the part of the patient, since the disease did occur following transfusions of whole blood. No evident case selections were in function to determine which patients should receive blood and which should receive plasma. It is our belief that if storage of liquid plasma at relatively high room temperatures for at least two to three months does not cause the death of the virus its virulence is reduced to the extent that few if any patients receiving such plasma manifest the disease.

"Sterilization" of plasma or serum containing viruses may be accomplished by a number of methods besides prolonged storage of the liquid cell-free product at room temperature. Chief among these are exposure to ultraviolet light, certain ionizing radiations and chemical agents, especially nitrogen mustard. Until all the factors concerning the toxicity and the safety of this practice are known, its use beyond that of clinical investigation should not be encouraged. The use of plasma irradiated with ultraviolet light has not completely eradicated the problem of homologous serum jaundice. This may be corrected when the light energies necessary to kill the virus without impairing the physiologic value of the plasma are known and such information employed as routine procedure. Objections of similar nature apply to the prolonged storage of liquid plasma at high room temperature, because neither the optimal temperature or minimal storage period for inactivation of the virus are established. Our data do not prove that room temperature storage under the conditions we report actually kills the virus, but if it does not the resistance qualities of the virus of homologous serum jaundice would be unique in this respect. For these reasons, we do not contend that the prolonged room temperature storage of liquid plasma should be generally practiced as a means of preventing homologous serum jaundice at present, although our data suggest that this *is a simple and safe method for reducing or abolishing* the incidence of homologous serum jaundice from pooled plasma.

---

[6] Allen, J. G.; Bogardus, G.; Egner, W., and Phemister, D. B.: Correction of Hypoproteinemia by Administration of Plasma and Blood, Surg., Gynec. & Obst. **86**: 604, 1948. Allen, Egner, Brandt and Phemister.[5]

[7] Havens, W. P., Jr.: Infectious Hepatitis, Medicine **27**: 279, 1948.

In the past eight years this plasma has been successfully employed in the emergency treatment of shock. Precise comparison with plasma stored under other conditions is not possible from our experience, but we have no clinical observations to indicate that our plasma is unsatisfactory in this respect. The criticism that plasma stored at room temperature could be a means for the transmission of bacterial contaminants is, in our opinion, not justified. It is true that plasma or serum stored under these conditions is an ideal culture medium for many organisms. In our experience, when bacterial contamination occurs one or more of several phenomena are readily noticeable: the plasma becomes turbid and may develop a flocculum; it may coagulate and often is rapidly discolored, and if gas is formed by the organism the stopper is frequently blown off the bottle. Contaminated plasmas can generally be recognized and set aside even before the routine culture data from the bacteriologic laboratory have been reported.

Liquid proteins generally are denatured on prolonged storage at room temperature. It is inconceivable that plasma as we have stored it does not undergo some changes of this sort. Nevertheless, such changes as may occur do not appear to impair the nutritive capacity of such plasma. On no occasions did the three patients receiving 18 to 24 months old plasma exhibit any untoward reaction. In all, 81 units of "old" plasma were administered to these three patients. The over-all reaction in our clinic to blood transfusion is 2.8 per cent compared to 0.4 per cent for our plasma.

A study of the physical and chemical qualities of liquid plasma stored at room temperature from three months to eight years is in progress and will be the subject of a later report.

SUMMARY

1. Lyophilization, freezing and refrigeration, almost exclusively employed in the preservation of plasma, are also the most suitable means available for the preservation of virus activity. As long as these methods are employed for the storage of plasma, it is imperative that pooled plasma be sterilized in some manner before such storage procedures are instituted in order to reduce or obviate the troublesome incidence of homologous serum jaundice from pooled plasma.

2. No virus is known to survive prolonged room temperature in a cell-free liquid state without preservatives. In the University of Chicago Clinics, where plasma has been stored at high room temperature for a period of three to 12 months before use, it appears doubtful that any patient has contracted homologous serum jaundice from this plasma. Of 864 patients given units of our pooled plasma stored in the liquid state at 78 to 96 F. for three months or longer, three are known to have contracted homologous serum jaundice. The source of infection in these three patients seemed more likely due to the blood received by two of them or to the lyophilized plasma or blood given the third patient. None of the 212 patients who received our plasma alone was known to have had latent jaundice. This plasma appears undiminished in its nutritive value and is remarkably free of elements causing untoward reactions.

3. During the same period, at least 14 and probably 16 or 17 of 6,503 patients receiving only refrigerated whole blood transfusions manifested latent jaundice typical of the homologous serum jaundice syndrome. Case abstracts of these 17 patients are reported.

OCCURRENCE OF HEPATITIS IN RECENTLY TATTOOED SERVICE PERSONNEL

BALLARD F. SMITH, M.D.
Buffalo

I shall attempt to demonstrate in this paper a possible relationship between tattooing and hepatitis. A perusal of the literature up to June of 1949 failed to reveal any mention of the subject of tattooing in hepatitis, hence, a report at this time is all the more pertinent. In the absence of the actual reproduction of the disease in human volunteers with material from a suspected reservoir, positive proof can never be offered and all conclusions must be based on deduction, elimination and supposition. All the data were obtained from the medical service of Fort Clayton Hospital, Fort Clayton, Canal Zone, where enlisted patients of the three services were observed. Results of the study thus far on the subject of tattooing and hepatitis have been considered of sufficient weight already to warrant preventive measures against another possible mode of dissemination of hepatitis, just as hospital technic has been altered in the past five years to prevent transfer of the hepatitis virus through supplies, not only in blood products but also in needles.[1]

SERUM HEPATITIS AND INFECTIOUS HEPATITIS

The etiological agent in the two forms of homologous serum jaundice, infectious hepatitis and serum hepatitis, is as yet unidentified. Electron microscopic examinations of filtered extracts of proved infected serum have disclosed nothing. Implantation on the chick embryo has produced no consistent or reproducible lesions.[2] Inclusion bodies have not been found by the pathologist in studies of patients with hepatitis.[2] However, because of the ability of the etiological agent to pass through bacteria-retaining filters, it would seem that the name virus would be most applicable to the causative agent.

Presently located at the Veterans Administration Hospital, Buffalo.

Read before the Medical Association of the Isthmian Canal Zone, May 16, 1950.

With the assistance of Col. W. D. Graham, commanding officer, Fort Clayton Hospital, and Lieut. Col. Norman Elton, chief, Board of Health Laboratory, Gorgas Hospital, Ancon, Canal Zone.

[1] Capps, R. B.; Sborov, V., and Scheifley, C. H.: Syringe-Transmitted Epidemic of Infectious Hepatitis, with Observations Regarding Incidence and Nature of Infectious Donors, J. A. M. A. **136:** 810 (March 20) 1948.

[2] Hepatitis, Combined Staff Clinics, Am. J. Med. **4:** 285, 1948.

Considerable experimental work has been done in an attempt to prove or disprove the theory that the viruses in infectious and serum hepatitis are one and the same. In support of the theory it is stated that the etiological agents are equally elusive, filtrable and resistant, as well as productive of identical changes in vivo. Aycock and Oren[3] showed that by giving the virus of infectious hepatitis parenterally to 22 volunteers a prolonged incubation period resulted, averaging 61.6 days. They deduced that this tended to substantiate a common cause for both diseases. They went on to state that the probable cause for the longer incubation period of serum hepatitis was either partial inactivation of the virus by human serum or inoculation of virus from a convalescent or abortive case. Neefe and his co-workers,[4] doing original work, and Haggard,[5] expertly summarizing the experimental work, have forcibly contended that a different agent is causative in these two diseases. Their conclusions are based on the fact that cross immunity does not exist between the two kinds of hepatitis. This has been well established not only in experimental infections but also in the numerous large wartime series of cases.

Actually, the only differences between the two diseases are the mode of transmission and the incubation period. Serum hepatitis is transmitted parenterally with a 40 to 160 day incubation period and infectious hepatitis orally with a 15 to 40 day incubation period. Clinically, there is no symptomatic, laboratory or duration difference that may be applied to the individual case.[6] When differences in the two diseases have been found, there have been other factors, such as the older age in serum hepatitis in the peacetime series or the battle wounds which were a concomitant in many other wartime series. The lack of ability to differentiate has been true of the cases which will be discussed in this paper.

Probably the most significant factor about the viruses of hepatitis which has fostered perpetuation of the disease has been their extreme hardiness in the presence of measures which usually are effective in eradicating bacterial disease. Environmental extremes are not deleterious to the viruses, as they survive several years in the frozen state and at least a year when desiccated at room temperature.[7] A high level of resistance to thimerosal (merthiolate®), equal parts of phenol and ether, alcohol and a temperature of 56 C. for 30 to 60 minutes has been shown. One of the few practical effective measures for destroying the virus in blood products is irradiation with ultraviolet light for 45 minutes at 2,537 angstrom units.[8] Boiling for 30 minutes is effective but only applicable in instrument sterilization.

TATTOOING AS MODE OF TRANSMISSION

The impetus of this investigation came about in July 1949 when it was noted on making rounds on the enlisted male medical ward that the most decorative section seemed to be the one reserved for patients with hepatitis. On closer scrutiny the reason became apparent. The tattooed males were predominant in this section. Many of these patients had been tattooed within two to five months prior to onset of symptoms, and this cutaneous glorification had been performed most commonly at the same establishment in Panama City.

Twenty-six cases of hepatitis were followed in this series. All patients were included who had hepatitis occurring after January 1949 and could be called back for further questioning or who came into the hospital after the study began. The patients were asked whether, when and where they were tattooed. They were questioned about past history of jaundice or contact with jaundiced persons, whether they had been hospitalized within the past six months and, most important, whether they had received any blood transfusions or plasma within the past year. Because of the time elapsing between the tattooing and the symptoms, often the incubation period was approximated to the nearest week.

It was found that 18 of the 26 men, or 69 per cent, had been tattooed 49 to 154 days prior to the onset of their symptoms. All tattoos which were done outside the 40 to 160 days were not considered as a possible cause of the serum hepatitis. Three of the patients had had more than one tattoo. Each had had at least one tattoo within the incubation period. All 18 patients denied contact with any jaundiced persons. Seventeen of the 18 had been tattooed at the same establishment. Two had been tattooed the same night at the same place and entered the hospital during the same week for therapy. They knew of no other likely contact, mutual or otherwise. In these two patients the clinical courses were quite different, one being much more deeply jaundiced and thereby requiring protracted hospitalization. In another patient who was hospitalized for a fractured nose hepatitis developed in the fourth week of his hospitalization. He gave a history of being tattooed 65 days prior to symptoms. The average time elapsing between tattooing and symptoms in the 18 patients was 99 days.

All the patients were returned to duty within three months with no evidence of impaired liver function. Each was checked one month after discharge, and only one patient required rehospitalization. No clinical or laboratory difference was evident between the 18 patients with significant tattoos and the other eight patients.

Because the incidence of tattooing is known to be high among service personnel, hospitalized enlisted men were questioned on this subject at three separate times until a total of 200 cases were obtained. The only patients excluded were the hepatitis patients in the hospital at these times. Sixty-one patients (30 per cent) were found to have had tattoos. Sixteen (8 per cent) of these patients had been tattooed at the establishment previously mentioned. None of these 16 gave a history of jaundice, but two had hepatomegaly; however, both had normal hepatic function tests. This comparison in tattoos in the nonhepatitis series of 30 per cent and total tattoos in the hepatitis series of 88 per cent seems to constitute a significant difference.[9]

---

3. Aycock, W. L., and Oren, W. F.: Prolonged Incubation Period as Epidemiological Principle: Infectious Hepatitis and Homologous Serum Jaundice, Am J M Sc **214:** 483, 1947.

4. Neefe, J R.; Gellis, S. S, and Stokes, J, Jr.: Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis. Studies in Volunteers Bearing on Immunological and Other Characteristics of Etiological Agents, Am J. Med. **1:** 3, 1946.

5 Haggard, C. N.: Infectious Hepatitis and Homologous Serum Hepatitis: Same or Different Diseases, New Orleans M. & S J. **100:** 148, 1947

6. Butt, H R, and Baggenstoss, A H.: Problems Encountered in the Diagnosis of Serum and Infectious Hepatitis, S. Clin. North America **27:** 926, 1947. Ginsberg, H. S Homologous Serum Hepatitis Following Transfusion, Arch. Int Med **79:** 555 (May) 1947.

7. Gellis, S. S, and others: Chemical, Clinical, and Immunological Studies on Products of Human Plasma Fractionation: Inactivation of Virus of Homologous Serum Hepatitis in Solutions of Normal Human Serum Albumin by Means of Heat, J. Clin Investigation **27:** 239, 1948.

8 Wolf, A M.; Mason, J.; Fitzpatrick, W J.; Schwartz, S. O, and Levinson, S. O.: Ultraviolet Irradiation of Human Plasma to Control Homologous Serum Jaundice, J. A. M. A. **135:** 476 (Oct. 25) 1947.

9. In the series of 26 cases were 18 patients with significant tattoos and 4 who were tattooed outside of the average incubation period of serum hepatitis.

The next step taken was to study the tattooing methods locally used and to ascertain whether the technics might be conducive to virus propagation. The procedure disclosed was as follows: The skin was shaved and washed with alcohol and allowed to dry. Then the stencil of choice was dusted with fingerprint powder and applied to the skin. After removal of the stencil the pattern was "needled in" with from two to four colors. The colors were kept in separate containers. All transfer to the patient from the container was by direct "dips" of the tattoo needles. A tattoo needle consists of a battery of four or five needles in a row, attached to a vibrator. A separate needle battery was used for each color. When the material at the end of the first dip had been used up on the skin, the needle was redipped into the dye container. The process was continued until the pattern was completed. Between customers, the needle was wiped with a cotton rag and dipped into a 3 ounce (90 cc.) alcohol bottle and allowed to dry. When the dye in the working container became depleted more dye was added from the stock bottle. The alcohol bottle likewise was replenished frequently from a larger stock bottle.

It would be a simple matter to harbor the viable virus of serum hepatitis both in the dye container and in the alcohol bottle for a long period of time under these favorable conditions. The tattooer stated that his work was not satisfactory unless he "drew blood" with the needles. Blood and serum were therefore directly introduced into the dye containers, and it would seem possible that one customer who was a carrier could contaminate all dye containers and the alcohol container as well. That this is possible is further supported by the small amount of serum necessary to transfer the virus, 0.001 cc. according to Scheinburg.[10] Sawyer and others[11] have suggested that as high as 6 per cent of the population are periodic carriers. They based their results on tracing the infected donors in pooled plasma.

CONTROL MEASURES

Certain control measures were put into effect after the preliminary report of suspected tattoo-spread hepatitis in Panama City and Colon. On Feb. 8, 1950 all tattoo operations were ordered suspended until the tattooists could be instructed in a safe way to operate. More acceptable technic was explained to the three operators on the Pacific side and the one on the Atlantic side. Two of the establishments reopened on the Pacific side and one on the Atlantic side, with the following modus operandi. Individual containers of dye are used for each customer. These are boiled for at least 30 minutes before reuse. Dye for each case is transferred from central containers to an individual container with a tongue depressor, which is used only once. Each needle is boiled for 30 minutes before reuse. One needle battery is used instead of the four which were used previously. This technic would seem adequate, provided it is religiously followed, to prevent the transfer of serum from one customer to another.

CONCLUSIONS AND SUMMARY

1. Serum hepatitis and infectious hepatitis remain entities by virtue of differences in their epidemiology and incubation period.

2. Twenty-six cases of hepatitis were analyzed for a possible common source of infection. Eighteen (69 per cent) of the patients were found to have been tattooed in Panama City within 49 to 154 days prior to the onset of their symptoms. Seventeen of these 18 men had been tattooed at one place. This incubation period is compatible with the incubation period of serum hepatitis.

3. Among routine hospital admissions in a series of 200 patients, 30 per cent were found to have been tattooed, but only 8 per cent were tattooed in Panama City (comparing identicals) and none of these were tattooed within the incubation period of serum hepatitis. Among the 26 hepatitis patients, 88 per cent had been tattooed in Panama City and 69 per cent within the incubation period of serum hepatitis. The possibility is offered that tattooing is an important mode of transmission of hepatitis among service personnel. 4. The tattooing technics were investigated and found to be such that viable virus of serum hepatitis could be transferred from one customer to the next. Corrected technics, if adhered to, should prevent tattoo-needle inoculation.

ADVANCES IN THE MANAGEMENT OF JAUNDICE

Experiences with 500 Jaundiced Patients

FREDERICK STEIGMANN, M.D.
Chicago

The jaundiced patient presents a peculiar problem for treatment inasmuch as the icterus itself, although only a symptom of some underlying disease, produces certain physiological disturbances which have to be considered in the treatment of the patient. Moreover, regardless of the underlying condition causing the jaundice, which must be kept in mind during the planning of the treatment, the factor of liver changes must be considered in the adequate care of the icteric patient. It is presently acknowledged that whether the jaundice is due to a hepatitis (virus or toxic) or whether it is due to some disease process in the extrahepatic biliary tract, there is an impairment of the liver parenchyma. The damage, however, is of variable degree. Severe icterus brings with it a number of changes within the liver itself and within the digestive tract, which must be appreciated when therapy is planned. In treating patients with jaundice one must follow a definite plan which should include all the various factors that directly or indirectly may affect the various functions of the hepatobiliary tract.

In general, the treatment of jaundice has for its objective the removal or destruction of the causative factor, the amelioration of symptoms, the prevention of further damage and the repair of already damaged tissues at the earliest time and by the simplest mode, in order to prevent profound changes which may lead to scars and severe impairment of function.

The above objectives have been considered in the therapeutic regimen of over 500 jaundiced patients during the past five years. These patients included all types of jaundice and presented variable degrees of liver damage. The youngest patient was 10 years

---

[10] Scheinberg, I. H.; Kinney, T. D., and Janeway, C. A.: Homologous Serum Jaundice, J. A. M. A. **134**: 841 (July 5) 1947.

[11] Sawyer, W. A.; Meyer, K. F.; Eaton, M. D.; Bauer, J. H.; Putnam, P., and Schwentker, F. F.: Jaundice in Army Personnel in the Western Region of United States and Its Relation to Vaccination Against Yellow Fever, Am. J. Hyg. **39**: 337, 1944.

Supported by a grant from the Jerome D. Solomon Research Foundation.

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

From the Departments of Internal Medicine and Therapeutics, Cook County Hospital, and the Department of Internal Medicine, University of Illinois College of Medicine

of age and the oldest 76. The group was composed of both white and Negro, male and female patients. Some of these were seen during the acute (first) attack of jaundice and some during recurrent episodes. After discharge from the hospital many of them were followed in the outpatient clinic so that their later course could be observed.

This paper is based on the experiences gained from the therapeutic results in the above group of patients. In it are presented the various therapeutic procedures employed in this group. It should be stressed that not all the procedures were applicable in all patients and that some procedures have been used only on an exceedingly limited scale because they were only recently added to the therapeutic armamentarium. With these exceptions in mind, the following therapeutic plan is presented and some of the underlying basic principles are discussed.

REST

Regardless of the type of jaundice, it is advisable that the icteric patient be put to bed and kept there until the course of the disease or the etiologic basis is well established. Some types of jaundice (for example, those due to liver damage, particularly of the virus nature) are extremely sensitive to physical exertion.[1] Hence, bed rest as complete as possible in given circumstances should be instituted. Bed rest prevents jarring and massage of the liver, and it may also prevent the excessive metabolism of other tissues which usually occurs during exercise. Some of the products of excessive metabolism, if not toxic to the liver per se, have to be detoxified by the liver, thus increasing the work of a damaged organ and possibly resulting in greater impairment. There is sufficient available evidence to support the need for strict bed rest particularly during the acute and convalescent phases of hepatitic icterus.

DIET

Since in most instances there is as yet no specific treatment for liver disease, and since it has been found that certain dietary substances are important in the production or in the prevention of liver damage,[2] it is obvious that the diet is of utmost importance in patients with jaundice. Nevertheless there are certain controversial points concerning the dietary management of such patients. Essentially there is agreement that all patients with jaundice should have a high caloric, high vitamin, high carbohydrate and high protein diet.

Fats.—The amount of fat in the diet is somewhat controversial. Some believe that the fat content should be low,[3] others that it should be average[4] and some that it should be high[5] in order to give the patient a high caloric, palatable diet. My observations indicate that in patients with acute jaundice the fat content plays a comparatively minor role and that it is immaterial whether the fat content is average, slightly above or slightly below the average. I like to give these patients a high caloric diet so prepared that they consume it all. If a little more fat will make the diet more palatable there is no objection to giving more fat. In patients with the chronic type of jaundice (particularly cirrhosis) I believe that the amount of fat should be small (average or less than average) because in these patients less fat is better handled from the point of view of both absorption and transportation. Fats of animal origin (excluding dairy fats) with their high content of unsaturated fatty acids are particularly injurious, increasingly so after heating.[6]

Fats are necessary for building up a high caloric diet. Second, diets without fats are not palatable and are poorly taken. Third, fats contain all the fat-soluble vitamins which are also necessary in body metabolism.

Because of these factors a certain amount of fat is a necessary constituent of any diet which has to be used for any length of time. The amount of fats ingested, however, must be regulated in certain patients with jaundice. Small quantities of fats should be given to those who have either poor digestion or poor absorption of fats as evidenced by steatorrhea or in whom the turnover of fat is pathologic and in whom the intake of even average amounts of fat may lead to increased fat deposits in the liver. Since it is agreed that a fatty liver is a "sick" liver, one which is more susceptible to injury from endogenous and exogenous hepatotoxins,[7] it is apparent that in order to protect the liver one should prevent excess deposition of fat in it. Obviously in the acute stages of jaundice which last for a short time the degree of fat absorption and fat retention plays a minor role. In the patients with chronic jaundice, however, in whom there is danger of increasing the already pathologic fat stores in the liver, the amount of fat may have to be curtailed, sometimes drastically.

Carbohydrates.—For many years diets high in carbohydrates have been advocated for patients with jaundice. This has continued until the present day. Patients with jaundice do require a carbohydrate intake anywhere from 350 to 500 Gm. daily, depending on the size of the person. If this amount of carbohydrate cannot be given by mouth, part of it may have to be given by a parenteral route. It is important to watch for glycosuria in order to be able to control it if it should occur. This control can take the form of more frequent feedings with smaller amounts of carbohydrates or in rare instances the administration of small doses of insulin to help in the metabolism of the ingested carbohydrate. The carbohydrates which are easily digested and of low residue are preferable for jaundiced patients.

Proteins.—Not until the late 1930's was the importance of proteins in jaundice recognized. Prior to that era a diet low in protein was the treatment of choice for such patients. In the past decade, however, a diet high in protein of high "biologic value" has become the accepted treatment for jaundiced patients, not only because proteins are needed for rebuilding damaged tissues but also because they contain many amino acids which are essential for normal metabolism of the liver. The value of the various individual amino acids for certain specific metabolic functions of the body is continuously being recognized. Furthermore, the products of some of these proteins are of great importance for the normal function of endocrine and exocrine glands, the secretions of which in turn influence liver metabolism. The experiences with nutritional deficiencies of some prisoners of war during World War II have demonstrated the significant changes that may occur in the body economy, such as body fluid, hormonal secretions and immunity, from an insufficient supply of protein. Proteins are greatly needed not only by patients with liver disease but also by those with jaundice of extrahepatic origin who have to undergo surgical intervention, because hypoproteinemia interferes with prompt and adequate wound healing.

---

[1] Barker, M. H.; Capps, R. B., and Allen, F. W.: Acute Infectious Hepatitis in Mediterranean Theater: Including Acute Hepatitis Without Jaundice, J. A. M. A. **128:** 997 (Aug. 4) 1945; Chronic Infectious Hepatitis in Mediterranean Theater: New Clinical Syndrome, ibid. **29:** 653 (Nov. 3) 1945.

[2] György, P., and Goldblatt, H.: Observations on the Conditions of Dietary Hepatic Injury (Necrosis, Cirrhosis) in Rats, J. Exper. Med. **75:** 355, 1942. Daft, F. S.; Sebrell, W. H., and Lillie, R. D.: Production and Apparent Prevention of a Dietary Liver Cirrhosis in Rats, Proc. Soc. Exper. Biol. & Med. **98:** 228, 1941. Webster, G. T.: Cirrhosis of the Liver Among Rats Receiving Diets Poor in Protein and Rich in Fat, J. Clin. Investigation **21:** 385, 1942. Blumberg, H.; Mackenzie, C. G., and Seligson, D.: The Prevention by Choline, Methionine or Casein of Dietary Cirrhosis of the Liver in Rats and Rabbits, Federation Proc. **1:** 187, 1942.

[3] Ravdin, I. S.: Some Recent Advances in Surgical Therapeusis, Ann. Surg. **109:** 321, 1939.

[4] Snell, A. M.: Management of Jaundiced Patients, J. A. M. A. **133:** 1175 (April 19) 1947.

[5] Hoagland, C. L.: Therapy of Liver Diseases, Bull. New York Acad. Med. **21:** 537, 1945. Hoagland, C. L.; Labby, D. H.; Kunkel, H. G., and Shank, R. E.: An Analysis of the Effect of Fat in the Diet on Recovery in Infectious Hepatitis, Am. J. Pub. Health **36:** 1287, 1946.

[6] Morris, H. P.: Chemical Changes in Pyrolized Lard and Biological Effects Produced in Rats Ingesting Heated Fat, in the Conference on Biological Antioxidants, 1947, Transactions of the Second Conference, New York, Josiah Macy Jr. Foundation, 1948, p. 96.

[7] Johnson, J.; Ravdin, I. S.; Vars, H. M., and Zintel, H. A.: Effect of Diet on Composition of Liver in Presence of Obstruction of Common Bile Duct, in Symposium on Preoperative and Postoperative Treatment, Arch. Surg. **40:** 1104 (June) 1940. Ravdin, I. S.; Thorogood, E.; Riegel, C.; Peters, R., and Rhoads, J. E.: Prevention of Liver Damage and the Facilitation of Repair of the Liver by Diet, J. A. M. A. **121:** 322 (Jan. 10) 1943. Miller, L. L., and Whipple, G. H.: Chloroform Liver Injury Increases as Protein Stores Decrease: Studies in Nitrogen Metabolism on These Dogs, Am. J. M. Sc. **199:** 204, 1940. Messinger, W. J., and Hawkins, W. B.: Arsphenamine Liver Injury Modified by Diet: Protein and Carbohydrate Protective, but Fat Injurious, Am. J. M. Sc. **199:** 216, 1940.

VITAMIN SUPPLEMENTS

Patients with jaundice should receive additional vitamin supplements despite a diet which is high in calories and vitamins. Usually additions of all vitamins are necessary.

Fat-Soluble Vitamins.—Vitamin A: It has been shown that the plasma of acutely jaundiced patients contains little vitamin A even though the liver may have large quantities of it. In chronically jaundiced patients, however, stores of vitamin A in the liver are much smaller than in patients with acute hepatitis or with extrahepatic biliary tract involvement.[8]

The low plasma vitamin A level in acute cases of jaundice seems to be due to failure of the liver vitamin A to reach the circulation. Thus in patients with hepatitis there is less rise of the vitamin A level in the plasma after a given dose of vitamin A than in nonjaundiced persons.[9] Large amounts of vitamin A given orally may increase the plasma vitamin A level by first saturating the liver parenchyma and then causing an overflow of vitamin A into the plasma. These observations suggest that patients with jaundice require large supplements of vitamin A. Doses of 50,000 to 100,000 units of vitamin A in oil are most likely to cause a rise of the plasma vitamin A level. The recent preparation of vitamin A in aqueous solution is better absorbed and more economical because a dose about half the unit value of the oily solution will raise the vitamin A level of the plasma to a similar height.[10] The vitamin A supplement should not be given in the form of cod liver oil, because the fatty acids in the latter might be injurious to the liver.[11] In patients who cannot take anything orally, vitamin A can be given parenterally, preferably in the form of vitamin A palmitate in aqueous dispersion.[12]

Vitamin D and Vitamin E: At present there seems to be no apparent need for or gain from additional amounts of vitamin D. In the experimental animal vitamin E prevents liver necrosis, and doses of 100 to 300 mg. of tocopherol daily have been suggested for hepatic injury in man.[13]

Vitamin K: Lack of vitamin K is manifested by characteristic symptoms. The need for this vitamin and the amount to be used in various types of jaundice is usually determined by the plasma prothrombin level. A good and prompt rise of the prothrombin level after the intake of vitamin K is frequently considered a sign of good liver function.

Water-Soluble Vitamins.—Vitamin C (Ascorbic Acid): Vitamin C, which is stored in only small amounts in the body, is depleted rapidly; therefore patients with jaundice should be given large doses of this vitamin (500 to 1,000 mg. a day) because it influences favorably carbohydrate and protein metabolism and prevents fat deposition.

Vitamin B Complex: The vitamins of the B complex group are possibly even more important for the jaundiced patient than the vitamins previously mentioned. This holds true particularly for the so-called *unknown* factors; therefore it is advisable to give jaundiced patients large supplements of natural vitamin B complex rather than only individual B complex fractions which are at present prepared synthetically. Although the need for thiamine hydrochloride, riboflavin, nicotinic acid and pyridoxine is indisputable, certain other biological substances, some of which are at present still unnamed, seem to have much greater influence than the aforementioned fractions. Moreover, it is not advisable to give large doses of the components of the B complex since unbalanced doses may produce liver injury. In the treatment of the jaundiced patient it is preferable to use crude liver extract, liver powder or yeast powder (or tablets) rather than the synthetic preparations. The recent experiences with folic acid and particularly with vitamin B_{12} [14] in liver disease are examples of the importance of the natural B complex preparations, because they show that some of the benefits which were obtained previously with liver extract, liver powder or yeast powder were probably, to some degree, due to the above two substances which are part of the B complex group. Vitamin B_{12} should be given in large doses (30 micrograms daily or more) to patients with liver disease.

MISCELLANEOUS DIETARY FACTORS

In planning a diet for a jaundiced patient one must consider not only the three main foodstuffs, carbohydrates, proteins and fats, but the various accessories. The average patient with liver disease should get a diet which is low in salt, particularly sodium. It is necessary to cut down the salt intake because in jaundice, particularly that due to liver disease, there is definite sodium retention,[15] which may in later stages lead to water retention, edema and finally ascites.

The quantity and quality of the diet are not the only factors to be considered in planning the dietary regimen of the jaundiced patient. One should realize that many of these patients have anorexia, nausea and/or vomiting. Hence the number of feedings, size of each feeding and its particular composition are important. It is at times preferable to serve small meals at frequent intervals in order to permit the patient to eat small amounts slowly rather than to offer him a large meal which will make him feel bloated, nauseated and anorexic for the remainder of the day. The patient who experiences such discomfort after eating one meal is not going to enjoy the thought of eating another meal. The daily food requirements should therefore be offered at frequent intervals in small portions and at appropriate times. When proteins are given as supplemental protein drinks, whether as hydrolysates[16] or casein mixtures,[17] they should be given after meals rather than shortly before a meal. The food should be prepared and served in as pleasant a way as possible, because many patients eat not only with their mouths but also with their "eyes and nose."

---

[8] Popper, H., and Steigmann, F.: Clinical Significance of Plasma Vitamin A Level, J. A. M. A. **123:** 1108 (Dec. 25) 1943.

[9] Popper, H.; Steigmann, F., and Zevin, S.: On the Variations of the Plasma Vitamin A Level After the Administration of Large Doses of Vitamin A in Liver Disease, J. Clin. Investigation **22:** 775, 1943.

[10] Popper, H.; Steigmann, F., and Dyniewicz, H.: The Influence of Antioxidative and Dispersing Agents on Vitamin A Absorption: Therapeutic Implication in Endogenous Hypovitaminemia A, Gastroenterology **10:** 987, 1948.

[11] György, P.: Massive Liver Necrosis, in the Conference on Liver Injury, 1949, Transactions of the Eighth Conference, New York, Josiah Macy, Jr. Foundation, 1950, p. 37.

[12] Unpublished data.

[13] György, P.: Relation of Dietary Factors to Liver Injury, in the Conference on Liver Injury, 1947. Transactions of the Sixth Conference, New York, Josiah Macy, Jr. Foundation, 1948, p. 67.

[14] Popper, H.; Koch-Weser, D., and Szanto, P. B.: Protective Effect of Vitamin B_{12} upon Hepatic Injury Produced by Carbon Tetrachloride, Proc. Soc. Exper. Biol. & Med. **71:** 688, 1949.

[15] Farnsworth, E. B.: Electrolyte Partition in Patients with Edema of Various Origins: Sodium and Chloride, Am. J. Med. **4:** 338, 1948.

Parenteral Solutions.—If a patient is not able to take all his caloric requirements by mouth some arrangements for parenteral supplements must be made, the latter consisting of dextrose and/or amino acid solutions. Dextrose, however, is at times given intravenously for other reasons, circulatory and metabolic.[18] If parenteral fluids are needed they should be given judiciously and at the correct time. To give parenteral fluids to a patient before the larger meals will result in a decreased appetite and a lack of enthusiasm for that particular meal. If protein hydrolysates are given parenterally because the patient cannot ingest sufficient proteins otherwise, these fluids definitely should be given after the last meal. The parenteral injection of protein hydrolysates gives the patient in some instances a sensation of satiety and, particularly when given too fast, may actually lead to nausea with or without vomiting.

The dietary therapy should be so arranged that it does not interfere with other necessary therapeutic or diagnostic procedures. Since most jaundiced patients —in this series—seem to eat best in the morning, it is advisable to plan a good breakfast for them with somewhat smaller meals during the remainder of the day. Furthermore, necessary injections of crude liver, vitamins and antibiotics which are part of the therapeutic regimen should be given in the morning before a meal or long enough after a meal so that the patient will not be upset too shortly before or after mealtime.

MEDICINAL SUPPLEMENTS

Calcium.—In some patients with jaundice, particularly in those with severe hepatitis associated with toxemia, calcium should be given in various doses (10 to 20 cc. of a 10 per cent calcium gluconate solution) and at various intervals during the day. Calcium appears to neutralize[19] some hepatotoxins (guanidine and related compounds) which accumulate in the blood stream of patients severely ill with liver disease.

Antibiotics.—Penicillin and streptomycin are frequently indicated for treatment of infections associated with jaundice, regardless of how mild the infections may appear to be. These antibiotics are helpful especially in treatment of the surgical types of jaundice. In cases of hepatitis (virus type) aureomycin has given some striking results particularly in cases of hepatic coma as observed by others[20] and by me in this series. I did not have sufficient experience with chloramphenicol (chloromycetin®) for any comment as to its efficacy in cases of hepatitis.

Sedatives.—For sedation, paraldehyde, chloral hydrate and slow acting barbiturates are safest for icteric patients. Use of opiates is contraindicated unless absolutely necessary. Meperidine (demerol®) hydrochloride may be used as a narcotic. Salicylates are well tolerated and can be given freely as analgesics.

Laxatives.—Many icteric patients suffer from constipation. In them a mild saline laxative is indicated.

Digestants.—For patients whose illness is more chronic and who complain of flatulence, belching and abdominal discomfort, the judicious use of dilute hydrochloric acid, bile salts and/or pancreatic substance has proved helpful.

Antipruritics.—Pruritus is encountered mostly in cases of surgical jaundice and is frequently one of the complaints with which it is most difficult to deal. Acetylsalicylic acid and ergotamine tartrate have been of little help. The antihistaminics have not proved too efficacious in treatment of my patients. Procaine hydrochloride in a 0.1 to 0.2 per cent solution (1 to 2 Gm. of procaine hydrochloride in 1,000 cc. of 5 per cent dextrose solution) has offered striking relief to some patients with pruritus.

Diuretics and Diuretic-like Substances.—In some patients treatment with mercurial diuretics alone may give results; in others ammonium chloride and mercurials are better. In some cases the addition of hypertonic dextrose solution or dehydrocholic acid (decholin®) (10 cc. of 10 per cent solution) increases the diuretic effect. Mercurials should be used cautiously.

Testosterone.—The injection of testosterone has been of aid in a small group of patients with cirrhosis. The basis for use of this substance is theoretical, but clinical evidence has accumulated to indicate that a trial of it is worth while.[21] It is possible that testosterone aids in getting rid of ascites by acting against the excess of estrogenic substances which the liver is unable to destroy and perhaps more so by its anabolic character.[22]

Crude Liver.—Injections of crude liver are beneficial because they frequently improve the appetite of the patient and at times appear to promote diuresis by supposedly counteracting the antidiuretic principle found in patients with hepatic jaundice.

Salt Substitutes.—The administration of one of the saltlike substances may be helpful because it will aid the patient in following a diet low in sodium.

Condiments and Spices.—Use of pepper, salt, mustard and other similar substances is best avoided.

Fluids.—The fluid intake should be moderately restricted to around 1,500 cc. More severe restriction may lead to complaints by the patient.

Lipotropic Substances.—In the past few years much has been written about the so-called lipotropic substances which supposedly help fat transport in the body.[23] At present a number of individual lipotropic substances (methionine,[24] choline and inositol) mixtures of lipotropic substances and liver,[25] powdered liver[26] and gastric mucosa are available for therapeutic use. Studies by various workers have shown that these substances have therapeutic value in carefully selected patients with cirrhosis of the liver on a nutritional basis or in patients with fatty livers.[27] The results of lipotropic therapy in patients with acute or chronic hepatitis on a virus basis have been disappointing.[28] In acute hepatitis characterized by severe toxic fatty changes, such as those following the injection of carbon tetrachloride or other hepatotoxic drugs, the administration of lipotropic substances may be of some value[29] In general it may be stated that lipotropic substances appear to be of therapeutic value mainly in those patients in whom excessive fatty deposits in the liver are prominent features.

---

[16] Such as ledinac® (containing liver protein digest 54 per cent and maltose 38.5 per cent with vitamins) or lonalac® a powdered whole milk preparation of low sodium content.

[17] Such as casec,® a milk protein preparation, and meritene,® a whole protein supplement fortified with vitamins and minerals.

[18] Wakim, K. G.: Effect of Certain Substances on Intrahepatic Circulation of Blood in Intact Animal, Am. Heart J. **27**: 289, 1944. Soskin, S., and Hyman, M.: Physiologic Basis of Intravenous Dextrose Therapy for Diseases of Liver, Arch. Int. Med. **64**: 1265 (Dec.) 1939.

[19] Minot, A. S.: Mechanism of Hypoglycemia Produced by Guanidine and Carbon Tetrachloride Poisoning and Its Relief by Calcium Medication, J. Pharmacol. & Exper. Therap. **43**: 295, 1931. Cutler, J. T.: Influence of Diet on Carbon Tetrachloride Intoxication in Dogs, ibid. **45**: 209, 1932. Cantarow, A.; Stewart, H. L., and Morgan, D. R.: Experimental Carbon Tetrachloride Poisoning in Cat: Influence of Calcium Administration, ibid. **63**: 153, 1938.

[20] Sborov, V.: Personal communication to the authors.

[21] Rosenak, B. D.; Moser, R. H., and Kilgore, B.: Treatment of Cirrhosis of the Liver with Testosterone Propionate, Gastroenterology **9**: 695, 1947.

[22] Kinsell, L. A.: Factors Affecting Protein Balance in the Presence of Chronic Viral Liver Damage, Gastroenterology **11**: 672, 1948.

Alcohol.—Use of alcoholic beverages is prohibited for patients with jaundice. They are detrimental to patients with chronic hepatitis (on a deficiency basis) and may be harmful even to those with the virus form.[30]

PROCEDURES FOR TREATMENT OF SPECIAL CONDITIONS IN THE JAUNDICED PATIENTS

Acute Hepatic Coma—In cases of severe hepatic insufficiency (fulminant hepatitis or actual hepatic coma) large amounts of dextrose must be given intravenously. Occasionally in these patients continuous infusion of 5 to 10 per cent dextrose solution is necessary. In some patients the additional use of sixth-molar sodium lactate solution is of value. The dextrose solution should be reinforced with large doses of ascorbic acid, thiamine hydrochloride 100 to 200 mg., riboflavin and niacin (nicotinic acid) or nicotinamide.[31] Vitamin B complex in the form of crude liver extract should be given daily and in large doses (3 to 5 cc.). Methionine given intravenously is occasionally helpful. Intravenous administration of liver in the form of a concentrate (intraheptol®) gave striking results in a few instances of hepatic insufficiency. Vitamin K should be given in doses large enough to keep the prothrombin level at normal range. If these patients have much fluid, edema, anasarca and ascites, a 25 to 50 per cent dextrose solution can be given intravenously at slow drip as part of the carbohydrate quota and the remainder as a 5 or 10 per cent solution. Although there may be sodium retention one must be careful to check for the possibility of hypochloremia which may occur if these patients are kept for a long time on a salt-free diet. In hepatic insufficiency the administration of oxygen in high concentration by tent, mask or tube occasionally has seemed to be of great value. In some of these patients transfusions of fresh whole blood are of value because they combat both anemia and prothrombin deficiency. Sometimes plasma may be used in addition to fresh whole blood; the plasma however should be freshly prepared rather than a multidonor mixture. If the latter, it should have been irradiated with ultraviolet rays to prevent the possibility of homologous serum jaundice in the future.[32]

Extrahepatic Obstruction—Most patients who are jaundiced as the result of an extrahepatic factor have to undergo surgical intervention for relief of the obstruction. Adequate liver therapy before operation will make these patients better surgical risks and will result in a better course during the operation and postoperatively. In these patients particular attention must be given to the prothrombin bleeding and coagulation time, to the fluid and electrolyte balance and to the type of anesthesia they will receive. The prevention of anoxia of the liver—by giving the patient oxygen and keeping the blood pressure at an adequate level—during the operation is important in these cases.

Once surgical intervention is deemed necessary it should be performed at the optimal time. In face of a dropping icterus and otherwise good condition of the patient, the operation may be postponed. However, in face of an extrahepatic obstruction with rising icterus, rising nonprotein nitrogen, falling hippuric acid synthesis and lowered cholesterol esters, surgical intervention should be prompt.

Jaundiced patients who are being prepared for surgical intervention should receive some type of antibiotic therapy. In most instances penicillin is sufficient; in some, however, depending on the associated infection, streptomycin, aureomycin or chloramphenicol may also be administered.

Fibrosis (Mesenchymal Reaction).—The presence of fibrosis in the liver in patients with chronic jaundice is usually manifested by additional signs, such as ascites, edema, distended veins in the abdominal wall, esophageal varices and splenomegaly. In these patients a stricter regimen of salt-free diet, diuretics and administration of vitamin B complex factors is necessary. Salt-free serum albumin is useful in some patients.[33] In addition, some patients may require abdominal paracentesis. Experiences with pituitary adrenocorticotropic hormone (ACTH) in such patients are still too limited to permit comment on the efficacy of the agent.

Infection.—In a jaundiced patient the presence of an infectious process, whether part of the underlying disease state or whether secondarily superimposed, adds to the hazards of the case. Infection should be combated by one or more of the antibiotics and by more intensive liver therapy in general[34]

---

[23] Best, C H, Hershey, J M, and Huntsman, M E The Control of the Deposition of Liver Fat, Am J Physiol **101:**7, 1932 Best C. H, and Huntsman, M E The Effects of the Components of Lecithin upon Deposition of Fat in the Liver, J Physiol **75:**405, 1932

[24] Meonine,® a synthetic racemic methionine supplied by Wyeth, Inc

[25] Methischol,® supplied by U S Vitamin Corporation

[26] Jayron, supplied by Viobin Corporation, is desiccated and defatted mammalian liver, 1 pound is equal to 4 pounds of whole liver

[27] Russakoff, A H, and Blumberg, H Choline as an Adjuvant to the Dietary Therapy of Cirrhosis of the Liver, Ann Int Med **21:**848, 1944 Broun, G O, and Muether, R O. Treatment of Hepatic Cirrhosis with Choline Chloride and Diet Low in Fat and Cholesterol, J A M. A **118:**1403 (April 18) 1942 Rimmerman, A B, Schwartz, S O; Popper, H, and Steigmann, F Dietary Factors in the Treatment of Cirrhosis Without Jaundice, Am J Digest Dis **11:**401, 1944 Morrison, I M The Response of Cirrhosis of the Liver to an Intensive Combined Therapy, Ann Int Med **24:**465, 1946 Barker, W. H The Modern Treatment of Cirrhosis of the Liver, M Clin North America **29:**273, 1945 Labby, D H; Shank, R E, Kunkel, H G, and Hoagland, C L. Cirrhosis of Liver, J A M A **133:**1181 (April 19) 1947 Beams, A J · Treatment of Cirrhosis of Liver with Choline and Cystine, ibid **130:**190 (Jan 26) 1946 Steigmann, F. Efficacy of Lipotropic Substances in Treatment of Cirrhosis of Liver, ibid **137:**239 (May 15) 1948

[28] Cameron, D G, and Newhouse, M L · Chronic Hepatitis Treated with Methionine and Choline, Brit M J. **1:**253, 1948 Wilson, C., Pollock, M R, and Harris, A D Therapeutic Trial of Methionine in Infective Hepatitis, ibid **1:**399, 1945 Hoagland, C L, and Shank, R E. Infectious Hepatitis Review of 200 Cases, J A M A **130:**615 (March 9) 1946

[29] Beattie, J, and Marshall, J · Methionine in Treatment of Liver Damage, Nature, London **153:**525, 1944 Eddy, J H, Jr Carbon Tetrachloride Poisoning Preliminary Report on Use of Methionine in Hepatitis, J A M A **128:**994 (Aug 4) 1945

[30] Damodaran, K, and Hartfall S J Infective Hepatitis in the Garrison of Malta Brit M J **2:**587, 1944

[31] Snell, A. M, and Butt, H R. Hepatic Coma Observations Bearing on Its Nature and Treatment Tr A Am Physicians **56:**321, 1941

[32] Wolf, A M; Mason, J; Fitzpatrick, W J, Schwartz, S O. and Levinson, S O Ultraviolet Irradiation of Human Plasma to Control Homologous Serum Jaundice, J A M A **135:**476 (Oct 25) 1947

[33] Watson, C. J, and Greenberg, A Certain Effects of Salt Poor Human Albumin in Cases of Hepatic Disease, Am J. Med Sc **217:**651, 1949

[34] Markowitz, J; Rappoport, A, and Scott, A C Prevention of Liver Necrosis Following Ligation of Hepatic Artery, Proc Soc Exper Biol & Med **70:**305 1949.

Hemolysis.—Some jaundiced patients have associated hemolytic phenomena. In these the factors causing hemolysis should be identified and removed if possible. Blood transfusions should be given as often as necessary to prevent anemia with the associated anoxia of the liver.

Convalescent Period.—Patients who are convalescing from jaundice, particularly those who are recovering from hepatitis, should only gradually return to their previous diet and activities. Many of these patients have to restrict the intake of fatty foods and alcoholic beverages. They should be careful to avoid exposure to excessive strain, infection or other influences which may decrease their resistance and lead to possible recurrence of the hepatitis. Patients with cirrhosis must watch their diet and abstain from alcohol indefinitely.

CONCLUSION

All jaundiced patients, whether they have hepatitis or extrabiliary tract conditions, have a certain degree of liver damage and should therefore be treated with an intensive liver regimen. Various steps in the present management of jaundice have been presented, and the basis for some of them has been discussed. All jaundiced patients, particularly before the exact nature of the jaundice is known, deserve the most intensive liver therapy in order to prevent some of the dire complications which may result from improper management of such cases.

Mortality Percentage of Patients with Medical Jaundice During Initial Hospital Admission

Types	1939-1944	1945-1950*
All jaundice cases	38.2	25.1
Infectious hepatitis	6.5	5.1
Toxic hepatitis	25.0	16.8
Cirrhosis with jaundice	63.0	38.8
Cirrhosis without jaundice	31.0	17.8
All cirrhosis cases	48.0	32.0 15.6†

* Patients treated through the month of May, 1950.
† If treated with lipotropic substances in addition.

The results of such a regimen as that presented above can best be gleaned from the accompanying table, which shows the immediate mortality of patients with medical jaundice before and after institution of the newer therapy.

30 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. T. L. Althausen, San Francisco: Dr. Steigmann's summary of the modern management of jaundice is excellent. There are some areas of disagreement in our handling of patients, but these are few. I would like to point out the necessity of giving supplemental vitamin D. Dr. Steigmann recognizes the importance of calcium metabolism in jaundice, because he advised the administration of salts of calcium. Supplemental amounts of vitamin D are also necessary because calcium even in large amounts is not absorbed well when there are excessive amounts of fat in the intestinal tract, whereas supplemental amounts of vitamin D will provide for more nearly normal absorption of calcium. With a few exceptions administration of bile salts is contraindicated in most diseases of the liver because bile salts stimulate the liver to secrete bile, and it does not seem therapeutically correct to stimulate a sick organ to greater activity, whether that organ be a sick heart or a sick liver. For this reason I believe that as a rule bile salts should not be administered to patients with jaundice. The third point is related to low salt diets, which are in most cases beneficial to patients with diseases of the liver. However, there is a certain amount of danger in overdoing a good thing, particularly if the patient has ascites and is being tapped. I saw at least two patients who were in a semicomatose condition after a prolonged period on a low salt diet and after removal of ascitic fluid but who regained consciousness immediately after the administration of sodium chloride. Stimulated by this experience, I determined the amount of sodium actually lost during a paracentesis and found that it may amount to as much as 15 Gm. I want to commend Dr. Steigmann on his discussion of the importance of judiciously timing the intravenous feedings. Such feedings definitely impair the patients' appetite when given shortly before a meal. This fact has never been emphasized sufficiently in the literature.

Dr. Frederick Steigmann, Chicago: Only in chronic cases of jaundice do I suggest administration of bile salts. As Dr. Althausen mentioned, patients with acute jaundice are not given bile salts because it is not desirable to stimulate a sick organ. In some instances I, too, have noticed that if the low salt diet is followed by the patient without careful observation by the physician, the patient may become hypochloremic.

ELECTROENCEPHALOGRAPHICALLY CONTROLLED ANESTHESIA IN ABDOMINAL SURGERY

CHARLES W. MAYO, M.D.
REGINALD G. BICKFORD, M.B.
and
ALBERT FAULCONER Jr., M.D.
Rochester, Minn.

The primary objective of the surgeon is to lower mortality and morbidity rates. For this reason he is always interested in developments that give promise of attaining this end. In the flush of enthusiasm about some new product or device the tendency is to think in terms of panaceas rather than to maintain a calm point of view and evaluate its true place in one's armamentarium. It is too early to classify the subject of this presentation, electroencephalographically controlled anesthesia in abdominal surgery. There is no field in medicine that the surgeon has followed with more interest and no specialty on which he has been more dependent than anesthesiology. Due credit must go to those physicians in active practice, physiologists and others in related basic science fields and those connected with pharmaceutical organizations, whose collective contributions since use of the first crude anesthetic agent have brought anesthesia to the present high plane of perfection.

Surgical anesthesia may be defined as the induced loss of sensation of a part, or of the body as a whole, with sufficient mental and muscular relaxation of the patient to permit optimal surgical technic for the operative procedure necessary. Short of this state, the patient has not arrived at a state of surgical anesthesia. Anesthetic agents vary because of their particular physical and chemical properties. One of the properties they have in common, however, is their ability to diminish and finally to produce loss of irritability and conductivity of nerve tissue when applied in adequate concentration. In general anesthesia, with certain aspects of which this paper is concerned, the agent or agents employed reach the nervous system by way of the blood stream. During the process of increasing the concentration of the anesthetic agent in the tissue, progressive inhibition of the normal function in the individual components of the nervous system is manifested by certain

---

Read before the Section on Surgery, General and Abdominal, at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

From the Division of Surgery (Dr. Mayo), the Laboratory of Electroencephalography, Section of Physiology (Dr. Bickford) and the Section on Anesthesiology (Dr. Faulconer) of Mayo Clinic.

reflex changes and alterations in spontaneous motor activity. From these changes the trained observer is able to make a fair estimate of the depth of anesthesia. On a basis of this estimate and his past experience he finds it possible in most cases to induce and maintain optimal conditions for the surgical procedure contemplated. The diagnosis of depth of anesthesia in this manner has never been an exact science but is truly an art.

In the hope that electroencephalographic changes occurring during surgical anesthesia might provide a basis for a more objective and exact estimate of the depth of anesthesia a critical study of these changes was made.[1] The investigation was confined primarily to persons undergoing operations in which nitrous oxide-oxygen-ether anesthesia was used. As an outcome of this work it was seen that there were changes in the electroencephalographic pattern of sufficient clarity, magnitude and consistency to allow these changes to be related to depths of anesthesia progressing from loss of consciousness to complete respiratory paralysis. These changes in pattern arranged in order of increasing depth of anesthesia seemed to fall naturally into seven levels.[1] The levels are indicated in figure 1

A study of the characteristics of the patterns occurring with increasing depth of anesthesia revealed the important fact that the total output of electrical energy per unit of time represented by the height and the duration of the brain waves was maximum in every case at a time closely approximating the lightest level of surgical anesthesia. As anesthesia became deeper there was a consistent and progressive drop in the total output of energy represented by the brain waves until at a level coinciding with respiratory paralysis this output of energy was, for practical purposes, zero

The constancy of the relationship between the output of electrical energy measured at the scalp and the depth of anesthesia suggested to one of us (R. G. B) the possibility of utilizing the brain potentials to regulate automatically the administration of certain anesthetic agents. To accomplish this an electronic integrator was added to the electroencephalograph. This served the purpose of storing the energy output until it had reached a certain predetermined amount, whereupon the stored energy was instantly released and the storage process begun anew. Thus, with an exceedingly active brain-wave pattern this cycle would be repeated with a much greater frequency than with an inactive brain-wave pattern.

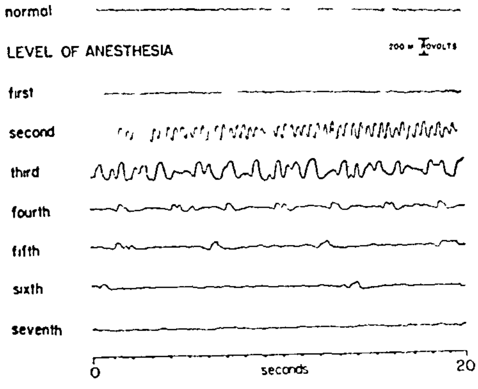


Fig 1 —Electroencephalographic levels of anesthesia (nitrous oxide oxygen ether)

Now it became possible to utilize the energy discharge at the termination of each of the cycles just described to "trigger" a relay circuit activating a pump A pumping system was designed so that each energy discharge would cause the propulsion of a fixed amount of anesthetic agent into a vein or an ether vaporizer In this manner a system was established which would administer the anesthetic agent (ether or thiopental [pentothal®] sodium) through the desired channels at a rapid rate when the brain-wave pattern revealed great activity and at a slower rate when the pattern revealed less activity

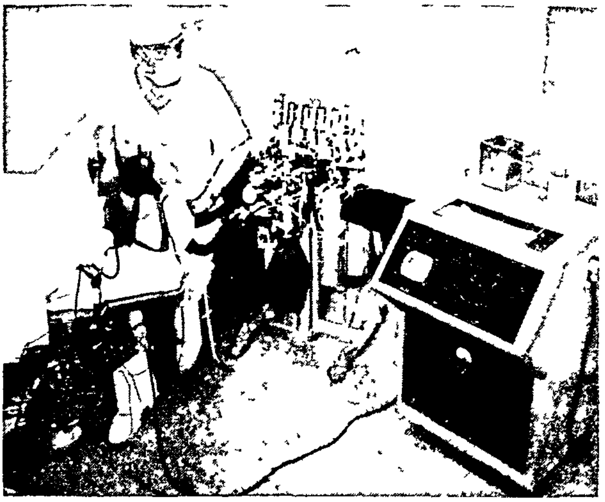


Fig 2 —Automatic administration of ether

Application of this device to the administration of thiopental sodium and ether to rabbits, cats and monkeys established the fact that a desired level of surgical anesthesia could be maintained automatically for long periods of time (two to three days) without human interference. The depth of anesthesia thus maintained could be established by suitable adjustment of the integrating mechanism. Experience demonstrated that this automatic system tends to compensate for factors which disturb equilibrium. For example, should there be a leak in the intravenous or inhalation channel or should the anesthetic agent be added by another means, the rate of administration governed by the system makes an appropriate compensation as soon as the disturbing factor is reflected in alteration of the brain-wave pattern

The idea of the automatic electroencephalographic control of anesthesia was developed by one of us (R. G. B.)[2] and co-workers, in collaboration with Drs Faulconer, Courtin and Soltero and Miss Haefliger Another of us (C. W. M.) became interested in it while it was still in the state of animal research, and he was privileged later to participate as a surgeon in the practical application of the system to man. To date it has been used in performing major surgical procedures on more than 50 adult patients of varying ages and of both sexes without untoward effect (fig. 2). The electroencephalogram foretells a change in depth of anesthesia many seconds before the change is apparent to an anesthetist. It instantly and automatically adjusts the administration of the agent to compensate for a change in depth. Thus it is more capable than the anesthetist of maintaining a constant level. If the surgeon will wait for the establishment of the necessary level of surgical anesthesia before opening the peritoneal cavity and, again after abdominal exploration, before starting the technical accomplishment of the main surgical procedure, the uninterrupted relaxation obtained by this automatic administration of anesthetic agents is most gratifying. However, the use of this method of anesthesia does not eliminate the need for the well trained anesthetist.

---

[1] Courtin, R. F.; Bickford, R. G, and Faulconer, A., Jr.: Classification and Significance of Electro Encephalographic Patterns Produced by Nitrous Oxide-Ether Anesthesia During Surgical Operations, Proc Staff Meet, Mayo Clin 25: 197-206 (April 12) 1950

[2] Bickford, R. G: Automatic Electroencephalographic Control of General Anesthesia, Electroencephalog & Clin Neurophysiol 2: 93 96 (Feb) 1950

In addition to the practical potentialities of electroencephalographically controlled anesthesia related directly to clinical surgery, electroencephalography has opened a new door to research in the field of anesthesiology. Automatic anesthesia may even have a therapeutic value in certain neuropsychiatric conditions or physical states in which a constant degree of controlled rest and relaxation may be desirable. For the investigator who must depend on anesthetized animals for his studies this method offers for the first time precise control and objective evidence of the depth of anesthesia—an important consideration in the evaluation of the results of many investigations.

Continuing efforts in this particular field of experiment and study give promise of simplification and development of the apparatus to a state of compactness and reliability which will add much to the safety of administration of certain anesthetic agents and make the method more generally available to research projects. It seems to have great practical potentiality.

ABSTRACT OF DISCUSSION

Dr. Albert Faulconer Jr., Rochester, Minn.: It is not our purpose to propose the substitution of a rather complex machine for a competent anesthetist. We wish to make that very clear. We do feel that there are certain applications, immediate and potential, which can be made with this device, and they can be classified for convenience under four major headings: First, this device may find a field of usefulness in clinical anesthesia when applied in circumstances in which the prolonged maintenance of an even level of anesthesia is desirable. The fact that it is capable of accomplishing this end has been demonstrated in these studies. A potential field of usefulness, though as yet untested, might be found in the maintenance of an even level of anesthesia in patients to whom curare has been administered. There is now sufficient evidence that for practical purposes curare will have little or no influence on the functioning of the method under discussion. Second, if therapeutic value should be indicated in the prolonged maintenance of narcosis, it is reasonable to assume that this method might be adapted to that purpose. At present we are unaware of any recognized therapeutic procedures involving prolonged narcosis with the agents used to the present time. Third, perhaps the greatest immediate value to be derived from the use of this method lies in the field of its research application. There long has been a need for a definite objective control of anesthesia in many of the problems encountered in pharmacologic and physiologic investigations. Often the uncertainty introduced by the necessity of maintaining animals under anesthesia of uncalculated depths has an important bearing on the conclusions derived from the experiment. Up to the present time this variable has been controlled by the interpretation of certain isolated reflex phenomena which in themselves are notably inconstant. In addition to these research applications it is our belief that this method may constitute a valuable tool in the elucidation of the fundamental nature of anesthesia in the higher species of animal life. Fourth, in a more general way it is considered that the development of automatic control of anesthesia, which is an example of the application of the servomechanism theory, opens wide and interesting possibilities of automatic control in the entire field of medicine.

Dr. William L. Estes Jr., Bethlehem, Pa.: My only qualification to discuss this report is that I have seen this remarkable machine in action. It is most uncanny and dramatic to observe the automatic record of the patient's condition unfold, including both the electrocardiographic changes and the electroencephalographic record, while the little click every few seconds indicates likewise the automatic administration of small increments of the anesthetic agent. The mechanism by which all this is accomplished is most baffling to a mere surgeon. Although the full significance of a machine of this character in the field of anesthesia is at this time difficult to predict, the immediate potentialities are most impressive and seem epoch making. It is of extreme value and importance that study of the encephalographic patterns elaborated by this apparatus indicates that the changes in pattern follow the degree or depth of anesthesia and that from the stage of loss of consciousness with any increase in depth of anesthesia, the energy output of brain waves is gradually decreased. With the great advances in anesthesia in the last decade one has been impressed by the fact that the problems of anoxemia and of cardiac and respiratory arrest in the patient under anesthesia in no way seem to have been abolished. Some of the underlying etiological factors for lethal complications may lie either (1) in the increasing tendency to use and the apparent vogue for use of multiple anesthetic or analgesic agents in a single patient, or (2) in the idiosyncrasy of the patient to one or more of the drugs employed and abnormal reaction to minimal or conventional dosage. Present methods of measuring the effect of the anesthetic on the patient and of estimating the depth of anesthesia are relatively crude—simple recording of the pulse, respiratory rate and blood pressure or observing reflexes—and, as Dr. Mayo has pointed out, estimation of depth of anesthesia by these means is an art rather than a science. One step toward more accurate estimation of anesthetic effect has been the oximeter of McClure and his co-workers. And now this machine presented by Drs. Mayo, Bickford and Faulconer, while seemingly highly technical, provides an accurate and scientific record of the vital functions of a patient under anesthesia and a prompt indication of early deviation from the normal and thus will indicate the need for therapy to prevent impending serious complications or disaster far quicker and earlier than any previous means or modality. It would also seem that this method of recording a patient's physical functions opens up a new field of more scientific approach to gaging the effect of anesthetics and surgical procedures on patients and offers untold potentialities toward advancing our knowledge of the detailed effects of anesthetics as well as rendering their administration far more safe.

Dr. R. G. Bickford, Rochester, Minn.: This method of anesthesia control consists essentially of the application to the human of engineering principles that have been known since James Watt invented the governor for his steam engine. This type of control system, known technically as a servomechanism and exemplified by a household thermostat, was studied a great deal in the last war and the information gained was used in the construction of robot missiles and other automatic weapons. Many of the servomechanisms which exist in the human body have been described by Claude Bernard and later by Walter Cannon under the general term "internal hemostasis." What we have attempted in automatic anesthesia is to apply an external regulating system to the human body. This may be looked on as a form of "external hemostasis." The simple injection technic described has application outside the field of anesthesia for the control of the concentration of chemical substances in the blood. For instance, anticonvulsive drugs can be automatically administered until seizure activity disappears from the brain. If the sensing element is replaced by a Geiger counter, the system could be used to maintain a desired concentration of a radioactive substance, for example, radioactive iodine in the thyroid. We are hoping to explore some of these applications in the near future.

INTRAVENOUSLY ADMINISTERED SACCHARATED IRON OXIDE IN THE TREATMENT OF HYPOCHROMIC ANEMIA

Therapeutic Results, Potential Dangers and Indications

ELMER B. BROWN, M.D.
CARL V. MOORE, M.D.
CESAR REYNAFARJE, M.D.
and
DAVID E SMITH, M D.
St Louis

Saccharated iron oxide given intravenously has recently been used successfully by several groups of British investigators for the treatment of iron deficiency anemia.[1] The therapeutic response has been uniformly good; reactions have been both infrequent and mild. It is surprising that the preparation can be injected with relative safety since all other forms of iron administered parenterally have caused reactions so severe that their use had to be abandoned; these include ferrous citrate, iron citrate green, ferrous gluconate, ferrous ascorbate, colloidal ferric hydroxide and colloidal ferric oxide.[2] The toxic manifestations commonly observed with the last two compounds were nausea, vomiting, abdominal and lower back pain, lacrimation, nasal stuffiness, headache, flushing and swelling of the face, swelling and stiffness of the tongue, paresthesias, fever, rapid fall in systolic blood pressure, substernal pain and a sense of impending death. The earlier studies with these therapeutically unsatisfactory iron preparations, however, had demonstrated that injected iron is almost quantitatively converted into hemoglobin; and when the amount of injected iron is large (0.608 to 1.32 Gm.) the reticulocyte response is dramatic and the rate of hemoglobin regeneration maximal.[2b] For these reasons the discovery of a safe, effective form of parenteral iron therapy must be regarded as important. At the same time, it should be emphasized that there are few legitimate indications for the injection of iron since almost all iron-deficient patients respond well to oral therapy. Furthermore, if the dose is not carefully calculated, much larger amounts of saccharated iron oxide may be given than are needed to correct the deficiency, and excessive, potentially harmful deposits of iron in tissues may result.

The present report (1) describes the clinical and hematological responses of 10 patients with hypochromic microcytic anemia to the intravenous administration of saccharated iron oxide, (2) emphasizes the potential toxic effects of overdosage and (3) defines the indications for the use of saccharated iron oxide.

THERAPEUTIC RESPONSE TO INTRAVENOUSLY ADMINISTERED SACCHARATED IRON OXIDE

Saccharated iron oxide was given intravenously to 10 patients with hypochromic microcytic anemia. (See the accompanying table). The primary cause of iron deficiency in each instance was hemorrhage either from the uterus or from the gastrointestinal tract. Hypochlorhydria and poor diet were undoubtedly important contributory causes in several patients. Initial hematological values showed the following range of variations: red blood cells, 3.14 to 5.17 million cells per cubic millimeter; hemoglobin 5.8 to 9.8 Gm. per 100 cc., and mean corpuscular hemoglobin concentration, 25 to 31 per cent.

Three different preparations of saccharated iron oxide, each made by a different manufacturer, were used.[3] They contained 100 mg. of iron per 5 cc. According to Mannich and Rojahn,[4] saccharated iron oxide is a negatively charged colloidal solution of ferric hydroxide, stabilized by adsorption of alkali and sugar The methods by which these commercial preparations are made and their exact chemical compositions have not been announced. The three solutions were equally effective, however, and equally free of side reactions Some patients received 40 mg. of iron the first day, 60 mg. the second day and 100 mg. daily thereafter, in a few instances the initial dose was 100 mg. A few patients were given 200 mg. at a time, and occasionally the dose was repeated twice during a 24 hour period The total dosage varied from 700 to 2,000 mg. Injections were made through a 20 gage needle into an antecubital vein, care being taken to avoid any leakage outside the vein. After it became evident that the material did not cause thromboses, the time of administration was often shortened to 15 to 30 seconds.

Each patient showed an excellent clinical and hematological response. Within several days after the start of therapy, patients noted improved appetites Shortly thereafter, weakness became less pronounced. A reticulocyte peak occurred in all cases within six to 11 days; it was greater than 15 per cent in all but three patients and in one case reached a level of 21.2 per cent. The average daily rise of hemoglobin varied from 0.106 to 0.262 Gm. per 100 cc.; the over-all average rise for 10 patients was 0.177 Gm. per 100 cc These data are summarized in the table. The response in one patient is shown graphically in figure 1.

Reactions were minimal. One patient (K. M.) complained of nausea, abdominal cramps and a chill after receiving her first dose of 100 mg. of iron as saccharated iron oxide. Subsequently, the dose was reduced to 40 mg. and gradually increased to the original 100 mg without further reaction. Another woman (T. P.) reported transient pain along the course of the injected vein, due presumably to venous spasm. In a third subject with exceedingly small veins (E. C.) several

---

Dr. Reynafarje is Rockefeller exchange fellow from Lima, Peru

From the Departments of Internal Medicine and of Pathology, Washington University School of Medicine

This investigation was supported by Research Grant H 22 from the National Heart Institute, United States Public Health Service

1. (*a*) Nissim, J A: Intravenous Administration of Iron, Lancet **2**: 49, 1947. (*b*) Davidson, L S. P., and Girdwood, R H: Refractory Iron Deficiency Anaemia Treated with Intravenous Saccharated Oxide of Iron, Brit M. J. **1**: 733, 1948 (*c*) Slack, H G. B, and Wilkinson, J. F: Intravenous Treatment of Anaemia with an Iron Sucrose Preparation, Lancet **1**: 11, 1949 (*d*) Govan, A D T, and Scott, J M Intravenous Iron in the Treatment of Anaemia of Pregnancy, ibid **1**: 14, 1949 (*e*) French, D G: Intravenous Treatment of Anaemia with an Iron Sucrose Preparation, ibid **1**: 370, 1949. (*f*) Nissim, J. A, and Robson, J M Intravenous Treatment of Anaemia with an Iron Sucrose Preparation, ibid **1**: 326, 1949, (*g*) Preparation and Standardization of Saccharated Iron Oxide for Intravenous Administration, ibid **1**: 686, 1949. (*h*) Sinclair, R J. G, and Duthie, J. J R Intravenous Iron in Hypochromic Anaemia Associated with Rheumatoid Arthritis, ibid **2**: 646, 1949

2 (*a*) Stockman, R.: The Treatment of Chlorosis by Iron and Some Other Drugs, Brit M. J **1**: 881, 1893 Heath, C W.; Strauss, M. B, and Castle, W. B· Quantitative Aspects of Iron Deficiency in Hypochromic Anemia· (The Parenteral Administration of Iron), J Clin. Investigation **11**: 1293, 1932 Reznikoff, P, and Goebel, W. F.: The Use of Ferrous Gluconate in the Treatment of Hypochromic Anemia, ibid **16**: 547, 1937. Friend, D G Iron Ascorbate in the Treatment of Anemia, New England J. Med **219**: 910, 1938 (*b*) Goetsch, A T; Moore, C. V., and Minnich, V.: Observations on the Effect of Massive Doses of Iron Given Intravenously to Patients with Hypochromic Anemia, Blood **1**: 129, 1946

3. The medical research divisions of three pharmaceutical companies supplied the iron solutions: (*a*) feojectin® by Smith, Kline & French Laboratories; (*b*) "intravenous iron, iron solubilized with sucrose" by the Wm S. Merrell Company, and (*c*) "saccharated iron oxide" by Sharp & Dohme, Inc

4 Mannich, C, and Rojahn, C A: Über die kolloide Natur des Eisenzuckers Ber d deutsch pharm Gesellsch **32**: 158, 1922

milliliters of the solution were accidentally injected outside the vein; the area became indurated, hot, swollen and painful. Acute discomfort subsided after 96 hours, but the induration took several weeks to disappear. There were no thromboses in spite of the fact that several patients received all injections into the same vein. Patients frequently reported that they felt abnormally sleepy for 10 to 15 minutes after receiving an injection.

POTENTIAL TOXIC EFFECTS OF OVERDOSAGE

The clinical experience reported by several groups of investigators[5] and that described in the preceding section establish the fact that up to 200 mg. of iron as saccharated iron oxide may be injected intravenously at one time with a high degree of safety for the patient. In all these studies great care was taken to give only enough iron to correct the deficiency. However, iron is often prescribed for patients who do not have hypochromic (iron deficiency) anemia, and its administration is frequently continued for months or years. If the same practice were followed for saccharated iron oxide,

Response of Patients with Hypochromic Anemia to Intravenously Administered Saccharated Iron Oxide

Case No	Patient	Age	Sex	Cause of Anemia	Initial Red Cell Constants *	Day of Therapy	RBC (10⁶)	Hb (Gm.)	Retics., %	Total Mg. of Iron Injected	Daily Rise in Hb. Gm per 100 Cc.
1	K. M.	43	F	Gastrointestinal bleeding	MCV 66 MCHb. 22 MCHb C 31%	—2	3.99	8.0	1.9	1,340	0.167
						0	4.01	8.2†	4.0		
						7	4.37	8.8	11.2		
						11	4.59	9.7	15.3		
						20	4.88	11.5†	..		
						31	4.84	12.1	3.4		
2	H. G.	47	M	Bleeding hemorrhoids	MCV 67 MCHb. 18 MCHb C 27%	—5	4.60	7.8	4.0	1,100	0.210
						0	4.42	7.7†	5.6		
						6	4.51	9.6	19.7		
						10	5.09	10.1	12.5		
						19	5.29	11.7†	2.0		
3	A. J.	16	F	Nutritional? menorrhagia	MCV 60 MCHb. 17 MCHb C 29%	—3	4.09	7.1	2.9	1,100	0.200
						0	3.73	7.1†	3.3		
						5	4.22	7.8	11.9		
						9	4.04	8.6	15.8		
						27	3.99	12.5†	4.7		
						41	4.83	12.7	1.6		
4	D. H.	66	F	Bleeding diaphragmatic hernia	MCV 72 MCHb 22 MCHb C 31%	—2	3.74	8.3†	7.7	1,486	0.170
						0	4.02	8.7	5.6		
						5	3.81	8.6	12.3		
						10	4.28	10.0†	20.2		
						19	4.37	11.3			
5	T. P.	46	F	Nutritional? menorrhagia	MCV 65 MCHb. 19 MCHb C 30%	—2	3.98	8.5	4.6	900	0.157
						0	4.41	8.9†	5.8		
						7	4.55	10.3	19.8		
						14	4.61	11.1†	10.5		
						34	4.72	12.3	2.4		
6	F. B.	26	F	Menorrhagia; postpartum hemorrhage	MCV 71 MCHb 22 MCHb C 31%	—4	4.62	9.9	2.1	700	....
						0	4.49	9.8	2.1		
						5	4.69	10.2	5.4		
						11	4.47	9.8	8.4		
						96	4.34	12.8	1.2		
7	E. S.	29	F	Menorrhagia, nutritional?	MCV 59 MCHb 16 MCHb C 27%	—3	4.95	7.4	.	1,700	0.165
						0	5.17	7.5†	..		
						8	5.10	9.2	15.7		
						23	4.41	11.3†	2.8		
						24	5.31	13.0	2.2		
8	F. O.	35	F	Menorrhagia	MCV 66 MCHb 17 MCHb.C 25%	—3	3.21	6.0	3.4	1,000	0.152
						0	3.14	6.0†	3.4		
						5	3.67	7.3	11.8		
						9	3.54	7.4	16.3		
						29	4.04	10.4†	1.0		
						77	4.37	13.1	6.0		
9	V. L.	61	M	Bleeding hemorrhoids	MCV 67 MCHb 16 MCHb C 25%	—2	3.45	5.7	3.1	2,000	0.262
						0	3.35	5.8†	1.4		
						5	3.77	6.9	12.2		
						8	3.70	9.0	21.2		
						16	4.47	10.9	11.0		
						29	4.52	13.4†	2.0		
10	B. G.	29	F	Menorrhagia	MCV 70 MCHb. 21 MCHb C 30%	—4	3.84	8.3	2.3	1,700	0.106
						0	3.80	8.0	2.4		
						4	3.98	8.6	8.6		
						8	3.80	8.4	10.9		
						17	4.43	10.1	8.4		
						31	4.76	11.3	4.2		
						73	4.22	11.8	1.0		

* The letters MCV, MCHb and MCHb C denote mean corpuscular volume, mean corpuscular hemoglobin and mean corpuscular hemoglobin concentration, respectively.

† Values from which average daily hemoglobin rise was calculated

An interesting effect of these preparations was discovered accidentally. Blood counts were usually obtained daily on each patient immediately before the iron was given. One day, on E. S., blood was drawn into diluting pipets immediately after the iron injection; the counts showed a profound granulocytic leukopenia (1,000 white blood cells per cubic millimeter with only 10 per cent granulocytes). More detailed study then revealed that the leukopenia was extremely transient. It appeared within five minutes after the iron administration but persisted for less than 30 minutes. The same phenomenon has been observed repeatedly but to a variable degree in other subjects, and it has been noted after use of each of the three iron preparations. The transient leukopenia is of no clinical import; its mechanism is unknown.

---

[5] (a) Holly, R. G.: Intravenous Iron Therapy, Bull. Univ. Minnesota Hosp. & Minnesota M. Found. **21**: 83, 1949. (b) Horrigan, D. L.; Mueller, J. F., and Vilter, R. W.: Observations on the Intravenous Administration of Saccharated Oxide of Iron in Human Beings, J. Lab. & Clin. Med. **36**: 422, 1950. (c) Footnote 1.

one could easily inject much greater amounts of the metal than are normally contained in the body. For instance, one injection of 5 cc. of saccharated iron oxide (100 mg. iron) each week for a year would provide over 5 Gm. of iron, an amount roughly equivalent to all the iron in the blood and tissues of an average normal adult man. More serious abuse with two or three such injections per week would provide 10 or 15 Gm. It is known that only small amounts of iron are excreted by the body except through hemorrhage. Consequently, the injected iron would be retained in large part and might eventually produce toxic effects. Since, to date, excessive amounts of iron have never been given to human subjects, one must evaluate the seriousness of the danger (*a*) by reviewing those situations in which iron has accumulated under pathological circumstances in the tissues of patients and (*b*) by animal experimentation.

Large accumulations of iron have been observed in the tissues of human subjects in the following circumstances: (*a*) in hemochromatosis; (*b*) after a large number of transfusions, and (*c*) in adult Bantu natives of South Africa who live almost exclusively on maize diets and have chronic nutritional deficiencies. For the sake of comparison later, the following features of hemochromatosis are emphasized here: it occurs predominantly in adult males; is of unknown causation but probably related to an inborn error of iron metabolism; is characterized by excessive deposits of hemosiderin and hemofuscin in the liver, pancreas and other tissues, and is frequently associated with hepatomegaly, cirrhosis, diabetes and bronzing of the skin.

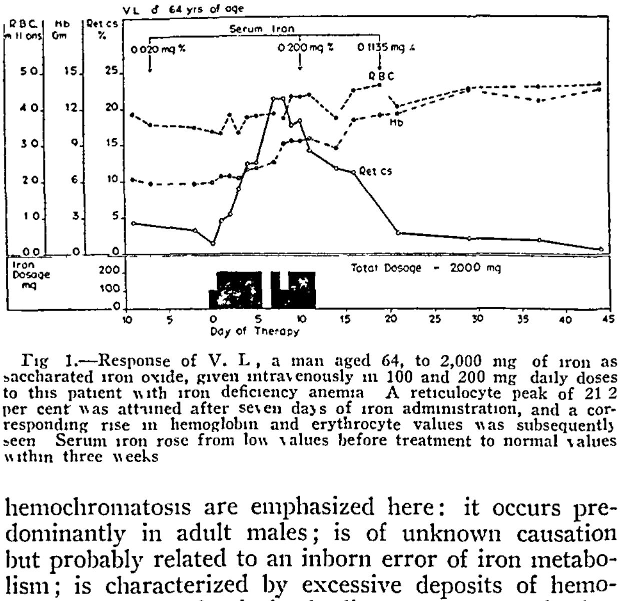


Fig 1.—Response of V. L, a man aged 64, to 2,000 mg of iron as saccharated iron oxide, given intravenously in 100 and 200 mg daily doses to this patient with iron deficiency anemia A reticulocyte peak of 21 2 per cent was attained after seven days of iron administration, and a corresponding rise in hemoglobin and erythrocyte values was subsequently seen Serum iron rose from low values before treatment to normal values within three weeks

Thirty cases of transfusion hemosiderosis have been described in the literature[6]; we have observed 10 additional patients, four of whom are still living. These 40 cases are essentially of three types: (*a*) pernicious anemia seen before the advent of liver therapy; (*b*) hypoplastic anemia, and (*c*) chronic forms of leukemia. In the reported patients the number of transfusions has varied between 12 and 290; one of our living subjects has received 534. If it is assumed that each transfusion averaged 500 cc. and that the amount of iron per 100 cc. of transfused blood averaged 50 mg., then the total amount of iron given to these subjects as hemoglobin varied from about 3 to 130 Gm. Hepatic enlargement was a frequent but not invariable result of these multiple transfusions, but fibrosis and cirrhosis were comparatively slight. Bronzing of the skin was usually noted in the subjects who received the larger quantities of blood. Diabetes was present in only six instances; in one case it appeared to be incidental, while in two others the only evidence for diabetes was an elevated fasting blood sugar level. There were mild to moderate amounts of hemosiderin in the spleen, pancreas, periportal lymph nodes, kidneys, adrenals and cardiac muscle with little evidence of fibrous tissue reaction. In six of the nine adults observed by us there were manifestations of cardiac failure.

Some clinical investigators have emphasized the similarity between transfusion hemosiderosis and hemochromatosis.[6b] There are differences, however, which seem important. Even though iron in the hepatic cells is definitely increased in transfusion hemosiderosis, the greatest deposits in liver and other tissues are in cells of the reticuloendothelial system. In hemochromatosis, by contrast, the iron deposition is largely parenchymal. Other differences include the infrequency of diabetes and the inconstant presence of true portal cirrhosis in transfusion hemosiderosis. More important than the relationship of these two disease states to each other, however, is the question whether the iron deposits actually cause the disturbances in hepatic, pancreatic and cardiac functions which do occur in hemosiderosis, no matter how inconstant. Since the deposition of iron from red cells which have been transfused into normal experimental animals does not produce fibrosis of the liver,[7] there appear to be other factors which cause the hepatic damage observed: the anemia itself, unrecognized serum hepatitis transmitted by one of the many transfusions or, in the case of hypoplastic anemia, hepatotoxic effects produced by the agents responsible for the marrow damage. About the only statements that may be made concerning the occasional association of diabetes with transfusion hemosiderosis are that the development of diabetes cannot be correlated with the number of transfusions and that it may be incidental. Chronic myocardial failure has never been observed in experimental animals given numerous transfusions. The patients with hemosiderosis in whom cardiac damage develops have usually had moderate to severe degrees of anemia for years and are often in the age group in which coronary artery disease is frequent. In spite of these considerations, and even though iron deposition in the myocardium is not great, one must assume until evidence to the contrary is produced that the iron is partly responsible for the disturbed cardiac function.

The third example of excessive deposition of iron in human subjects was described by the Gillmans[8] as cytosiderosis.[9] Cytosiderosis occurs in young adults of either sex among pellagrous Bantu natives whose food consists almost entirely of maize. The large amounts of inorganic iron in the diet apparently come from cooking utensils, and at least one of the factors which promotes excessive iron absorption is the low phosphorus content of the maize.[10] This disease is associated with hepatomegaly and varying degrees of portal cirrhosis; hemosiderin and hemofuscin may be found in large aggregates in the portal tracts. Intensely pigmented livers did not regularly show fibrosis, but in other instances cirrhosis was found superimposed on mild degrees of pigmentation.[8] There was no close correlation between the cirrhotic changes and the amount of iron present. For this reason, it is difficult to incriminate the iron as the cause of the fibrotic change. The Gillmans stated that many patients showed "a profound disturbance of carbohydrate metabolism" but cited no specific instance of diabetes and presented no histological studies of pancreatic tissue.

---

[6] (*a*) Yates, J. L., and Thalhimer, W.: Treatment of Pernicious Anemia: A Patient Who Received 113 Transfusions, J. A. M. A **87:** 2156 (Dec. 26) 1926 (*b*) Schwartz, S O, and Blumenthal, S A: Exogenous Hemochromatosis Resulting from Blood Transfusions, Blood **3:** 617, 1948. (*c*) Muirhead, E. E.; Crass, G; Jones, F., and Hill, J. M: Iron Overload (Hemosiderosis) Aggravated by Blood Transfusions, Arch. Int. Med. **83:** 477 (May) 1949. Hahn, A., and Bauer, J.: Personal communication to the authors Wyatt, J. P., and Goldenberg, H Hemosiderosis in Refractory Anemia, Arch Int. Med. **83:** 67 (Jan.) 1949. Wyatt, J. P., and Moraques, V M: Transfusional Siderosis, Am J. Path, to be published.

[7] Rous, P, and Oliver, J. Experimental Hemochromatosis, J. Exper Med **28:** 629, 1918.

[8] Gillman, J, and Gillman, T.: Structure of Liver in Pellagra, Arch Path **40:** 239 (Oct) 1945. Gillman, J.; Mandelstam, J., and Gillman, T.: A Comparison of Chemical and Histological Estimations of the Iron and Copper Content of the Livers of Africans in Relation to the Pathogenesis of Cytosiderosis and Cirrhosis (Haemochromatosis), South African J. M. Sc **10:** 109, 1945 Gillman, J, and Gillman, T.: The Pathogenesis of Cytosiderosis (Hemochromatosis) as Evidenced in Malnourished Africans, Gastroenterology **8:** 19, 1947.

[9] The term cytosiderosis is used in this paper to refer specifically to the syndrome which the Gillmans[8] described and not as a synonym for hemochromatosis

From the above discussion it is clear that in hemochromatosis, transfusion hemosiderosis and cytosiderosis excessive amounts of iron are associated with pathological changes in several organs, but it is not certain in any instance that the iron is actually responsible for precipitating these abnormalities. It is necessary, therefore, to seek further information from the controlled experiments possible with animal studies. In extensive long-term investigations Polson [11] injected a colloidal iron preparation into rabbits and Cappell [12] injected saccharated iron oxide into mice and rats. In the latter experiments as much as 550 mg. of iron per kilogram of body weight was given. Both authors studied the tissue distribution of iron in detail. In addition they observed that: (*a*) there was no tendency for the development of hepatic fibrosis; (*b*) no iron was deposited in the pancreas except in histiocytes, and (*c*) pancreatic fibrosis did not occur.

It seemed desirable to repeat these observations using the same saccharated iron oxide solutions now being used for the treatment of human subjects. Accordingly, saccharated iron oxide at two dosage levels (0.5 and 1.0 Gm. of iron per kilogram of body weight) was given intravenously to four dogs. The amount injected daily varied from 100 to 300 mg. of iron: the time required for administration of the total quantity (4.54 to 9.44 Gm.) varied from 44 to 68 days. The levels of 0.5 and 1.0 Gm. per kilogram correspond roughly to 35 and 70 Gm. of iron for an adult human of average size and equal or exceed the amounts usually found in the tissues of patients with hemochromatosis. These animals have been fed a diet of purina® dog chow and have now been carefully followed for a period of 15 months. They are active and healthy in appearance. Weight has either remained constant or increased slightly. Hematological values have remained normal. The serum bilirubin levels and the sulfobromophthalein sodium clearance test of hepatic function have showed no change. Fasting blood sugar levels have consistently been within normal limits. Serum iron values were high during the period of injection but returned to the upper range of normal after all the iron had been given. Electrocardiographic tracings have been within normal limits. Data collected during the first eight months of observation on one of the dogs are summarized in figure 2.

Biopsy specimens, before and six months after the injections were begun, were obtained from the liver, spleen, pancreas, mesenteric lymph nodes, skeletal muscle and skin. The control sections showed no histological abnormalities. Those taken at six months revealed pronounced iron pigmentation of the liver, spleen and mesenteric lymph nodes, with less pigment in the pancreas, kidney and skin, but practically none in skeletal muscle. There was no increase in fibrous tissue in the liver, pancreas or other organs, and there were absolutely no cirrhotic changes. Sections of the liver stained for iron revealed the hemosiderin to be deposited in coarse granules aggregated into clumps with focal distribution in the sinusoids and portal triads. In addition to these larger deposits there was a diffuse, fine, granular deposition of iron in the hepatic parenchymal cells throughout the lobules and in individual Kupffer cells. Smaller deposits of iron were seen in the endothelium of the blood vessels, but none was found in the bile ducts. In the spleen, the iron was found in large quantities in the macrophages of the sinusoids and to a lesser extent in the capsule, trabeculae and beneath the endothelium of the blood vessels. There were small amounts of iron in the glomerular capillary tufts with faint diffuse deposits and rare fine granules in the renal tubules. The pancreas revealed only small amounts of iron confined to macrophages and to the subendothelial layers of the blood vessels. None was detectable in the acini or islet epithelial cells. Mesenteric lymph nodes showed large quantities of iron deposited in the macrophages in the central sinusoids with a less decided pigmentation of the peripherally located macrophages. Iron in the skin was confined to macrophages in the dermis, especially those around hair follicles; there was no pigmentation of the epidermis. The only iron seen in skeletal muscle sections was a trace in the endothelium of some capillaries. No pigment resembling hemofuscin was found in any of the sections.

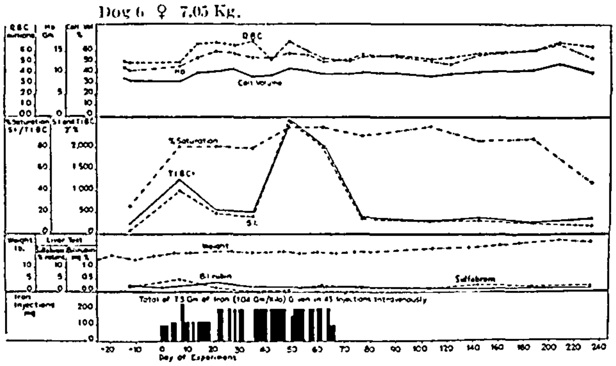


Fig. 2.—Response of dog weighing 7.05 Kg. to 7.3 Gm. (1.04 Gm. per kilogram of body weight) of iron as saccharated iron oxide given intravenously in divided doses during a period of 66 days. There were no significant changes in erythrocyte values, serum bilirubin or hepatic function as measured by sulfobromophthalein sodium clearance. The weight increased slightly during the 240 days of observation. The serum iron level rose to high values during the period of injections but fell to the higher limits of normal after the injections were completed though the percentage of saturation remained elevated. The letters S. I. and T. I. B. C. denote serum iron and total iron-binding capacity.

In the animal experiments just described there was no clinical, laboratory or histological evidence of any dysfunction produced by the injected iron. The periods of observation, however, were relatively short. It remains entirely possible that large tissue deposits of iron may cause anatomic or functional damage to organs not after 1 or 2 years but after 5 or 10. Until this possibility can be eliminated by further study, it is highly important that the injection of excessive amounts of iron into human subjects be diligently avoided.

---

[10] Hegsted, D. M.; Finch, C. A., and Kinney, T. D.: The Influence of Diet on Iron Absorption: II. The Interrelation of Iron and Phosphorus, J. Exper. Med. **90**: 147, 1949.

[11] Polson, C. J.: The Fate of Colloidal Iron Administered Intravenously, J. Path. & Bact. **31**: 445, 1928; The Fate of Colloidal Iron Administered Intravenously: Long Experiments, ibid. **32**: 247, 1929; The Failure of Prolonged Administration of Iron to Cause Haemochromatosis, Brit. J. Exper. Path. **14**: 73, 1933.

[12] Cappell, D. F.: The Late Results of Intravenous Injection of Colloidal Iron, J. Path. & Bact. **33**: 175, 1930.

INDICATIONS FOR THE USE OF INTRAVENOUS IRON THERAPY

Since the response of patients with hypochromic anemia to oral iron therapy is so uniformly good, there are few real indications for giving iron parenterally. It is true that many persons have mild gastrointestinal discomfort when oral therapy is begun; but if the initial doses are small and increased gradually over a period of three or four days to the usual therapeutic amounts, almost all patients can tolerate the iron. However, attention should be called to special situations in which parenterally given iron preparations will be helpful.

1. Hypochromic anemia in patients with ulcerative *colitis, with functioning colostomy, after extensive bowel* resection, and with sensitivity to iron. In these circumstances oral iron therapy may not be tolerated because gastrointestinal symptoms are severely aggravated or because sensitivity manifestations are produced. Two of our patients treated with saccharated iron oxide fell in this category. The first was K. M. (see table, case 1), a white woman aged 43, who in 1942 at an operation for acute intestinal obstruction underwent removal of a segment of gangrenous ileum infarcted by adhesions. Since the operation she has had intermittent bloody diarrhea, the cause for which has not been determined despite many examinations. As a result, hypochromic anemia developed. She has been given ferrous sulfate, ferrous gluconate, ferrous carbonate and other oral preparations on numerous occasions, but therapy has had to be discontinued each time because of severe nausea, abdominal cramps and diarrhea. The patient experienced a reaction when she received her first intravenous injection of saccharated iron oxide but tolerated subsequent injections well and had an excellent remission. The second patient was D. H. (case 4 on the table), a white woman aged 66 in whom hypochromic anemia appeared secondary to blood loss associated with a diaphragmatic hernia.[13] Oral ingestion of iron repeatedly caused itching of her skin and angioneurotic edema-like swelling of her face and hands. This woman sought relief from her anemia in a number of large medical centers. Each time her story of sensitivity to iron was greeted with skepticism, but each time the same manifestations appeared when any iron salt was taken by mouth. These symptoms were so intolerable that she refused to continue therapy. We gave her a test dose of radioactive iron (1 mg. per kilogram of body weight) in order to measure iron absorption; 25 per cent of the dose was absorbed, but the angioneurotic edema which appeared was unmistakable. Skin tests, patch tests and passive transfer tests done by Dr. Samuel Bukantz in an attempt to demonstrate the sensitivity were inconclusive. The initial dose of saccharated iron oxide given intravenously contained only 6 mg. of iron; the amount injected was then increased gradually to provide 24, 56, 100 and finally 200 mg. per day. There were no reactions whatever. Both clinical and hematological improvement was dramatic.

2. Hypochromic anemia in patients refractory to oral therapy. Several patients have been reported who failed to respond to oral intake of iron but who made excellent recoveries after receiving saccharated iron oxide intravenously.[14] Presumably, they were not able to absorb iron from the gastrointestinal tract. In no instance, however, has definite proof of poor absorption been obtained. Absorption studies were not actually made, and there was no evidence except the patient's word that the oral iron preparations had actually been taken. These cases must be extremely rare; the authors have never seen one. It is conceivable that iron absorption may be exceedingly poor in steatorrhea or sprue. Undoubtedly, however, oral iron therapy fails most frequently because its use is not restricted, as it should be, to the treatment of hypochromic anemias.

Other legitimate indications for parenteral iron administration may become evident later. In particular, it is probable that one could give saccharated iron oxide intravenously to hypochromic, pregnant women seen for the first time only a few days before the expected date of delivery and that enough of the iron would pass the placental barrier to protect the infant from developing iron deficiency during the first year of life. We have treated two such patients, but the babies of these mothers are still in the newborn period. There has not been sufficient time to determine whether they will or will not become hypochromic.

It is evident that in only two of the 10 patients listed in the accompanying table was there good reason to give saccharated iron oxide intravenously. The other eight patients would almost certainly have responded well to oral therapy. The parenteral iron was given only because its safety and effectiveness were being evaluated. As long as the total dose is carefully regulated, however, there are no known scientific reasons why it should not be used in any hypochromic patient. Practically, it would probably be more expensive to the patient and often considerably less convenient.

COMMENT

Saccharated iron oxide, given intravenously, has produced satisfactory hematologic and clinical remissions in patients with uncomplicated hypochromic anemia,[15] hypochromic anemia associated with pregnancy[16] and hypochromic anemia appearing in subjects with rheumatoid arthritis.[1h] Most authors have recommended that the initial dose be 20 to 50 mg. of iron and that the daily dose thereafter be 100 or 200 mg. until the deficiency is corrected. The total dose to be given can be calculated by using either of the following simple formulas:

$$\frac{\text{Norm. Hb.} - \text{Init. Hb.}}{100} \times \text{Blood Volume in cc.} \times 0.0034 \times 1.5 = \mathrm{Fe}_d$$

where: (1) The normal hemoglobin is assumed to be 15 Gm. for men and 13.5 Gm. per 100 cc. for women.

(2) Blood volume is estimated to be 80 cc./Kg. body weight.

(3) The factor 0.0034 converts grams of hemoglobin into grams of iron.

(4) The factor 1.5 is arbitrarily employed to provide for extra iron to replace the depleted tissue stores.

(5) Fe_d is the calculated dose in grams of iron.

---

[13] *Dr. Charles A. Doan referred this patient to us.*

[14] Davidson and Girdwood.[1b] Slack and Wilkinson.[1c] Sinclair and Duthie.[1h] Horrigan, Mueller and Vilter.[5b]

[15] Nissim.[1a] Davidson and Girdwood.[1b] Slack and Wilkinson.[1c] French.[1e] Nissim and Robson.[1f] Horrigan, Mueller and Vilter.[5b]

[16] Govan and Scott.[1d] Holly.[7a]

If one assumes that the body volume is 5,000 cc., he may multiply $\frac{5,000}{100}$ by 0.0034 by 1.5 to obtain the factor 0.255. The formula for determining the total dose may then be simplified to become:

$$(\text{Normal hemoglobin} - \text{Initial hemoglobin}) \times 0.255 = Fe_d$$

Hemoglobin values are used in terms of grams per 100 cc., not percentage of normal.

Within three or four days after injections of the saccharated iron oxide are begun, patients usually experience a sense of well-being, and reticulocytes in the peripheral blood begin to increase. The reticulocyte peak is reached in six to 11 days and is usually higher than with oral therapy. Hemoglobin values begin to rise about the end of the first week; the rate of hemoglobin regeneration is maximal.[2b] In the ten patients reported in this study, it varied from 0.106 to 0.262 Gm. per 100 cc. per day.

Reactions to saccharated iron oxide have been minimal. In a few of the reported cases generalized toxic reactions of mild degree have occurred[17]; several of these were observed, however, with solutions made by the investigators themselves rather than with the more carefully standardized commercial preparations. Thromboses and venous spasm have been observed in a few instances.[18] The incidence of reactions apparently rises as the individual dose is increased above 200 mg. In our 10 treated patients there was only one generalized reaction. One patient complained of transient pain along the course of the injected vein. Leakage of the saccharated iron oxide outside the vein caused a painful induration in one instance, but the lesion slowly disappeared without complication. We have noted two effects not previously described: (1) a transient, severe granulocytic leukopenia during the first 15 to 20 minutes after injection and for 10 to 15 minutes after it has been completed. No attempt is made to minimize the importance of these reactions. Their mildness is impressive only because other forms of parenteral iron are so much more toxic. None of the reported or observed reactions to saccharated iron oxide has been severe, but they are all troublesome.

Saccharated iron oxide, as a relatively safe parenteral iron preparation, is undoubtedly of value, but it does not represent a great therapeutic advance. Few patients are unable to tolerate or fail to respond satisfactorily to oral iron administration. Such patients in the past have been treated satisfactorily by transfusion of whole blood. There is, furthermore, the danger that saccharated iron oxide might be given in much larger amounts than are required to correct a deficiency or be given to persons who are not iron deficient. The excess iron will then be stored in tissues because the body is unable to excrete it; conceivably over a period of years it may produce fibrosis and functional changes in the liver, pancreas and other tissues. It must be admitted that the evidence attributing such chronic, toxic effects to large amounts of tissue iron is incomplete. In hemochromatosis, transfusion hemosiderosis and cytosiderosis the excessive iron deposits may be in no way responsible for the associated tissue changes, but one cannot yet be sure. The use of saccharated iron oxide, therefore, should be restricted to the treatment of iron-deficient patients. The dose to be injected must be calculated. The calculated dose should not be exceeded.

SUMMARY AND CONCLUSIONS

Excellent therapeutic results were obtained in 10 patients with chronic hypochromic anemia from calculated doses of saccharated iron oxide given intravenously. Blood values were restored completely to normal; rates of hemoglobin regeneration were maximal. Two of the patients had previously been unable to tolerate oral iron in therapeutic amounts. Reactions to saccharated iron oxide were infrequent and mild. These results confirm completely the reports of several British investigators on the efficacy of this form of iron therapy.

From animal experiments and from a review of the pertinent literature, it is concluded that no definite decision about the chronic, toxic effects of excessive deposits of iron in tissues can yet be reached. It is certainly possible that excessive deposits may produce tissue damage over a period of years. Because of this danger, it is imperative that saccharated iron oxide be given only to iron-deficient patients in a dose calculated to correct the deficiency.

There are relatively few specific indications for the parenteral administration of iron. However, when hypochromic anemia develops in patients with ulcerative colitis, with a functioning colostomy after extensive resection of the bowel or with sensitivity to iron (rare), oral therapy may so aggravate intestinal symptoms or may produce sensivity manifestations so troublesome that the parenteral use of saccharated iron oxide is preferable to oral therapy. In other patients who would respond satisfactorily to ordinary iron preparations given orally, saccharated iron oxide may be injected with relative safety if the dose is carefully calculated. From a practical point of view, its use in these patients does not seem desirable because: reactions, even though mild and infrequent, will prove troublesome; daily injections for 10 to 14 days will often be inconvenient, and the cost to the patient is likely to be considerably greater than that for oral therapy.

NOTE.—Since this paper was submitted for publication, the authors' attention has been called to the experience of Scandanavian workers with another form of iron which has been used parenterally. The preparation is marketed under the proprietary name ferrigen® by the Astra Co. of Sweden. The iron is said to be linked to a soluble, high-molecular carbohydrate, the compound being built in a manner similar to ferritin. Clinical experience with this material has been summarized by N. S. E. Andersson: (Experimental and Clinical Investigations into the effect of Parenterally Administered Iron, *Acta Med. Scandinav.*, supp., 241, 1950).

Groups and Clinics.—The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual. As a group or clinic is composed of individual physicians, each of whom, whether employer, employee or partner, is subject to the principles of ethics herein elaborated, the uniting into a business or professional organization does not relieve them either individually or as a group from the obligation they assume when entering the profession.

From the PRINCIPLES OF MEDICAL ETHICS of the American Medical Association.

---

[17] Nissim.[1a] Davidson and Girdwood.[1b] Slack and Wilkinson.[1c] Holly.[5a] Horrigan, Mueller and Vilter.[5b]

[18] Slack and Wilkinson.[1c] Horrigan, Mueller and Vilter.[5b]

Clinical Notes, Suggestions and New Instruments

FATAL VIRUS HEPATITIS OCCURRING IN AN INFANT THREE MONTHS OF AGE

BERNARD L. LIPMAN, M.D.
Philadelphia

Virus hepatitis, occurring as either infectious hepatitis or homologous serum hepatitis, is extremely rare in infants under 6 months of age. The following case report is of particular interest because of several possibilities in the causation and transmission of the disease.

The illness occurred 60 days after the administration of commercial irradiated blood plasma, and the mother of this infant had infectious hepatitis about three years prior to the birth of the baby.

REPORT OF CASE

History of Present Illness.—A boy 3 months of age was admitted to the Jewish Hospital, Philadelphia, June 20, 1950 with the complaint of jaundice of 24 hours' duration. Prior to this, from June 3 to 11, 1950, the baby had fever (ranging from 101 to 103 F.). The fever did not respond to adequate therapy with penicillin or sulfonamides. On June 9 the liver was noted to be 3.5 cm. below the right subcostal border. From June 11 to 19, 1950, the baby was asymptomatic; however, on the latter date the baby became jaundiced. He was promptly admitted to the hospital, where the jaundice rapidly became more intense. Coma and convulsions ensued, and death occurred 18 hours after admission. Laboratory data are given in the accompanying table.

Laboratory Data

	Date	White Blood Cells, %	Polymorphonuclear Cells, %	Lymphocytes, %	Monocytes, %
Hematologic data......	3/22/50	14,800	82	18	..
	3/23/50	17,800	78	22	..
	3/24/50	23,400	87	13	..
	6/ 4/50	8,500	78	12	10
Blood culture...........	3/26/50	Negative after 10 days			
Serologic tests...........	3/22/50	Comb's test negative			
	3/26/50	Serologic test for syphilis negative			
Urinalysis...............	6/ 4/50	Trace of albumin			
	6/20/50	Urinary urobilinogen absent; urinary bile pigments 2+			
Blood chemical studies..	6/20/50	Thymol turbidity 7 units			
		Cephalin flocculation 4+			
		Serum bilirubin 15.1 mg./100 cc.			
		Total serum proteins 6.1 Gm./100 cc. (albumin 5.0 Gm., globulin 1.1 Gm.)			

Past History.—The baby was born March 22, 1950 of a full term normal delivery and weighed 6 pounds 8 ounces (2,948 Gm.). The only abnormality noted was a moderate right metatarsus varus. During the neonatal period the baby had troublesome forceful vomiting, which began as soon as oral feedings were attempted. Five per cent glucose water, a weak evaporated milk formula, skim milk and a soybean milk substitute formula were all vomited. A roentgenogram of the chest and abdomen as well as a gastrointestinal series using barium contrast mediums were all normal. An antispasmodic drug, atropine methyl nitrate, combined with the use of evaporated milk formula thickened with cereal offered partial relief. Because of the possibility that prepyloric edema was responsible for the continuation of symptoms, two intravenous infusions of commercial irradiated blood plasma, 50 cc. each, were administered on April 3 and 4, 1950. All equipment used in the infusion had been autoclaved according to standard hospital technic. There was prompt subsidence of all symptoms following the plasma infusions, and the baby was discharged from the hospital April 12, 1950 weighing 6 pounds 12 ounces (3,062 Gm.) on a maintenance dose of atropine methyl nitrate 0.1 mg. before each feeding and thick cereal feedings. The baby did well at home, weighing 10 pounds 12 ounces (4,876 Gm.) June 3, 1950, at which time the present illness began.

Family History.—There was a strong family history of allergy. The mother had hay fever, and the maternal aunt had severe multiple ingestant and inhalant allergies. The mother had had infectious hepatitis in 1947. She was Rh negative and the father Rh positive, but there was no evidence, laboratory or otherwise, of erythroblastosis. This was her first child.

Report of Necropsy.—At necropsy gross observation showed that the liver was enlarged, with the anterior margin 3 cm. below the xiphoid process of the sternum and 2.5 cm. below the costal margin in the right midclavicular line. The substance was mottled red and tan, congested and firm. In the gastrointestinal tract the stomach was distended with gas. The muscle layers, particularly of the cardiac end of the stomach, were hypertrophied. The duodenum was congested. The papilla of Vater was small but the lumen was patent. Peyer's patches were slightly swollen. The entire mucosa has a deeply roughened appearance. The ileum contained a small amount of blackish material resembling altered blood. The colon contained clay-colored feces. The gallbladder was rather small and contained a little bile and mucus, which was squeezed with difficulty through the papilla into the duodenum.

Microscopically the liver was almost unrecognizable. At least half of the liver cells had been destroyed. The remaining cells showed swollen vacuolated cytoplasm and degenerating nuclei. Fragments of liver cells were seen in the sinusoids. In the region of what had been portal spaces there were numbers of proliferating pseudo bile canaliculi, with occasional transition between these and liver cells. Sinuses were overdistended in many places. At some places there were small hemorrhages where the sinus walls had been destroyed. Inflammatory cells, mainly mononuclear, were scattered throughout the tissues, with an occasional polymorphonuclear leukocyte among them. Fibroblasts were fairly numerous, especially in the portal spaces where there was a beginning fibrosis.

COMMENT

It seems certain that the source of the infection was either irradiated blood plasma or a carrier state existent in the mother. Unfortunately no hospital records exists of the lot number of the plasma; however, it is likely that the finishing number was 5523 E. It is our understanding that several or more finishing numbers may be included in the same lot. Correspondence with the pharmaceutical concern revealed that the bulk of this material was furnished to hospitals in the vicinity of New York City during Autumn of 1949 and the winter of 1949-1950. No reports of homologous serum hepatitis have as yet been forthcoming concerning this supply of plasma.

Although the incubation period of 60 days seems to incriminate irradiated plasma as the source of infection, one cannot be positive without further proof. It is also possible that a carrier state existed in the mother; however, it is likely that in utero infection would have been disastrous to the fetus and that postnatal infection would have had a shorter incubation perior. To my knowledge the carrier state cannot be proved without the use of human volunteers.

It would seem wise to be circumspect regarding the use of plasma in infants and children and for general supportive therapy to utilize various protein hydrolysates instead of plasma. Whenever plasma, irradiated or otherwise, is administered the lot number should be scrupulously recorded for reference should the need arise.

SUMMARY

A case of fatal virus hepatitis occurring in an infant 3 months of age is reported. The etiologic basis is uncertain, but the evidence points to either irradiated blood plasma or a carrier state of the mother.

8261 Temple Road (19).

Autopsy and pathological reports were prepared by Dr. Helen Ingleby, Department of Pathology, Jewish Hospital.

CONTRIBUTION TO THE SURGICAL TREATMENT OF ASCITES

Modification of the Crosby-Cooney Technic

MORRIS L. PARKER, M.D.
and
I. ALFRED BRECKLER, M.D.
Chicago

The surgical treatment of ascites has been revived in recent years as a result of the technic popularized by Crosby and Cooney.[1] They employ a glass button to establish a communication between the intraperitoneal space and subcutaneous tissue. A small pyrex® spool with flanged ends is sutured to the rectus sheath so that it runs from the peritoneal cavity through rectus muscle to the subcutaneous fat. Ascitic fluid moves through the button and into a space between the rectus fascia and subcutaneous fat and is there absorbed. There is little doubt that for the purpose intended the technic is feasible and of great benefit to many patients burdened with severe ascites.

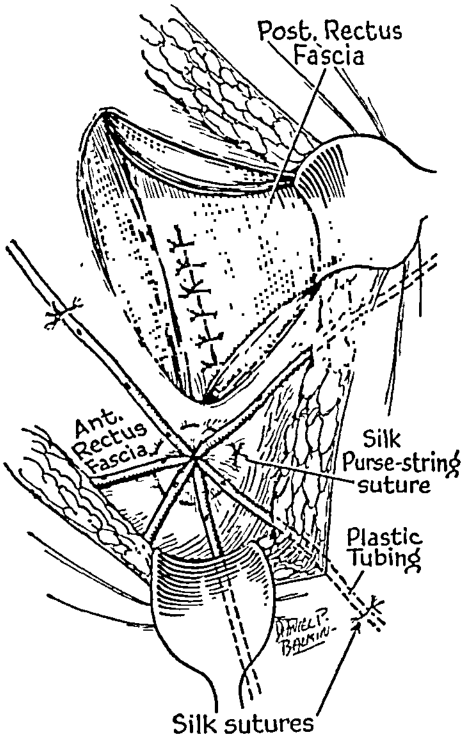


Fig. 1.—Posterior rectus fascia and peritoneum are closed. Note the purse string suture around the bundle, placed in anterior rectus fascia, and the silk sutures tacking the tubing in place

Schwei[2] has reported that 9 patients treated with the Crosby-Cooney button had remarkable control of their ascites. Warren[3] considered the method extremely beneficial. Unfortunately, as with every surgical procedure, there are instances of failure. Welch[4] studied 2 cases at autopsy and found that after two to four weeks the benefits obtained were negligible. He found that a subcutaneous cystic space with a dense fibrous wall had formed around the exit opening of the button and that effective absorption of fluid was almost completely impaired. Lord[5] has evidently heard of or seen similar failures, for he has tried stripping the rectus and external oblique fascia around the button to render the absorbing surface more reliable.

We have heard of similar difficulties with the glass button and have attempted to use another mechanical device to overcome the problem described. We employ a bundle of six polyethylene tubes (0.055 inches [1.4 mm.] inside diameter and 0.075 inches [2 mm.] outside diameter) approximately 6 inches (15 cm.) long. The tubing is bound together by two ties of surgical silk 1 inch (2.5 cm.) and 2 inches (5 cm.) from one end of the bundle.

Small holes are cut at intervals in the tubing. The bundle is then sterilized by boiling and inserted into the peritoneal cavity through rectus muscle and sheath as described by Crosby and Cooney.[1] The peritoneal end of the bundle has the shorter free ends, and the longer free tubes are then fanned out into the subcutaneous space, using as a guide a grooved director. (See figures 1 and 2 for exact technic.) We employ a plastic material which has been tissue tested in rabbits in our laboratories. It is nonirritating to tissue.[6]

It seemed to us that using tubing in this fashion would offer a much larger surface for absorption and that, being nonreactive, it would keep pocketing at a minimum. Our experience with this technic has been limited to 2 cases, but the results are sufficiently encouraging to warrant further trial.

REPORT OF CASES

CASE 1.—A white woman aged 57 had hepatic cirrhosis with increasing ascites, despite careful medical therapy, for a period of three years. Abdominal paracentesis was necessary with increasing frequency, until tapping was needed bimonthly prior to admission of the patient to the hospital. She suffered advanced malnutrition secondary to the severe cirrhosis and extreme generalized arteriosclerosis. There was severe ascites; the liver was palpable 5 fingerbreadths below the costal arch, and the spleen was definitely enlarged. Liver function studies showed pronounced hepatic damage.

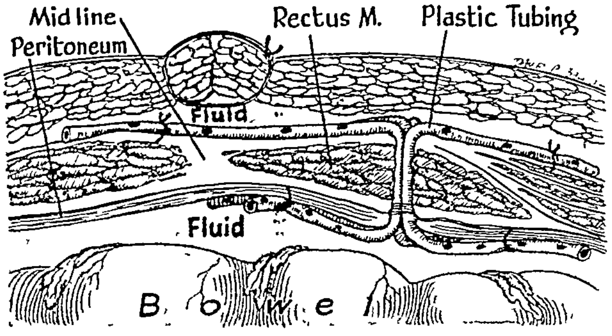


Fig. 2.—Cross section of the anterior abdominal wall showing the final position of the tubing within the abdominal cavity and under the subcutaneous layer.

After the insertion of the plastic tubing the patient remained hospitalized two weeks; successful convalescence was prevented by her general debilitation. Immediately after completion of the surgical procedure dependent edema developed over the sacral and pubic areas, and the anterior abdominal wall became decidedly edematous and remained so. Tapping was not necessary, although the abdomen seemed to increase slightly in size The advanced state of senility and emaciation contributed to making the patient completely uncooperative, and she finally refused any type of nourishment. As a result, she died in coma seven weeks after the surgical intervention. Even in such an advanced stage of debility paracentesis was not required, and fluid continued to be absorbed to the time of her death.

CASE 2.—A white man aged 51 had enjoyed good health until the three weeks prior to admission. He had been on vacation and had been pleased with an 18 pound (8.2 Kg.) gain in weight. Abdominal swelling, tenderness and nausea brought

---

From the University of Illinois Medical School (Dr. Parker, Clinical Assistant Professor of Surgery) and from Michael Reese Hospital (Dr. Parker, Attending Surgeon, and Dr. Breckler, Surgical Resident).

[1] Crosby, R. C., and Cooney, E. A.: Surgical Treatment of Ascites, New England J. Med. **235**: 581 (Oct. 17) 1946.

[2] Schwei, G. P.: Jackson Clin. Bull. **9**: 154 (Sept.) 1947.

[3] Warren, K. W.: Ascites: Its Treatment, S. Clin. North America **28**: 721 (June) 1948.

[4] Welch, K. J.: Failure of the Peritoneal Button Operation for Ascites, New England J. Med. **237**: 735 (Nov. 13) 1947.

[5] Lord, J. W.: Modification of Crosby-Cooney Operation for Intractable Ascites Due to Cirrhosis of Liver, J. A. M. A. **136**: 767 (March 13) 1948.

[6] Ingraham, F. D.; Alexander, E., Jr., and Matson, D. D.: Polyethylene, A New Synthetic Plastic for Use in Surgery, J. A. M. A. **135**: 82 (Sept. 13) 1947. Breckler, I. A.: Unpublished data.

him to his physician. He had been a moderate but continuous drinker of whisky for many years. Physical examination revealed a tense abdomen, obviously containing fluid, and an enlarged liver. Studies of hepatic function showed severe impairment of hepatic metabolism.

A set of plastic tubes was inserted, and at the same time liver biopsy confirmed the diagnosis of cirrhosis. There was definite improvement for the two weeks following surgical intervention while the patient was in the hospital. Five weeks after the operation so much subcutaneous fluid had collected that it was necessary to withdraw 2 gallons (7.56 liters) of ascitic fluid from the superficial pocket formed after the surgical treatment. There was no evidence at that time of intra-abdominal fluid. For the next three weeks the fluid did not reaccumulate. The patient expired in coma from hepatic failure, about two months after the tubes were inserted.

In neither case did fibrosis produce pocketing of fluid within the first four to six weeks, as Welch[4] had mentioned observing with use of the glass button. Both patients had adequate amounts of fluid freely absorbed from the subcutaneous spaces.

SUMMARY AND CONCLUSION

Two patients with severe ascites, both of whom died after hepatic failure, were treated with the insertion of plastic tubing that extended from the abdominal cavity to the subcutaneous tissue of the anterior abdominal wall. In both instances ascitic fluid was present in copious amounts in the subcutaneous tissues for a period of seven weeks.

Both patients were near death when treated, and in neither instance was an autopsy obtained. However, it seemed to us that the plastic tubing allowed extremely free passage of fluid into the subcutaneous tissue. Moreover, even when both patients were moribund, the outward movement of the fluid continued. Pocketing did not occur.

It is our hope that this modification of the Crosby-Cooney technic will be tried in other clinics.

30 North Michigan Avenue.

Council on Foods and Nutrition

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council:

JAMES R. WILSON, M.D., *Secretary.*

Borcherdt Malt Extract Company, Chicago.

BORCHERDT MALT SOUP EXTRACT POWDER, COCOA FLAVORED, consists of malted barley extract, potassium carbonate and cocoa.

Analysis (submitted by manufacturer).—Moisture 3.60%, total solids 96.40%, ash 3.20%, protein 9.30%, fat 0.9%, maltose 67.50%, dextrins 12.80%, starch 0.62%, crude fiber 0.22% theobromine 0.09% and caffeine 0.03%.

Calories.—3.7 per gram; 105 per ounce.

Use.—For use as a mildly laxative food adjuvant in the diets of children.

Libby, McNeill & Libby, Chicago.

LIBBY'S STRAINED AND HOMOGENIZED CHICKEN SOUP consists of chicken broth, chicken, carrots, wheat starch, celery, onions, salt, parsley and monosodium glutamate.

Analysis (submitted by manufacturer).—Total solids 9.50%, moisture 90.5%, ash 0.36%, fat 1.34%, protein (N × 6.25) 0.83%, crude fiber 0.15%, carbohydrates other than crude fiber (by difference) 6.92%.

Vitamins and Minerals	Per 100 Gm.
Total vitamin A activity	760 I.U.
Thiamine	0.0049 mg.
Riboflavin	0.026 mg.
Nicotinic acid	0.35 mg.
Calcium	12.0 mg.
Phosphorus	12.0 mg.
Iron	2.5 mg.

Calories.—0.43 per gram; 12.2 per ounce.

Use.—For use in the feeding of infants, convalescents, and others requiring a soft diet.

Reid Murdoch & Company, Division of Consolidated Grocers Corporation, Chicago.

MONARCH BRAND DIETETIC PACK APRICOTS—UNPEELED HALVES consists of the fruit itself packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 9.0%, fat (ether extract) 0.2%, protein (N × 6.25) 0.3%, ash (minerals) 0.5%, sodium 21 mg. per 100 Gm., potassium 156 mg. per 100 Gm.

Calories.—0.40 per gram; 11.3 per ounce.

Use.—For use in calory-restricted and other therapeutic diets.

MONARCH BRAND DIETETIC PACK ROYAL ANNE CHERRIES consists of the fruit itself, packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 10.0%, fat (ether extract) 0.5%, protein (N × 6.25) 0.7%, ash (minerals) 0.3%, sodium 16 mg. per 100 Gm., potassium 101 mg. per 100 Gm.

Calories.—0.48 per gram; 13.6 per ounce.

Use.—For use in calory-restricted and other therapeutic diets.

MONARCH BRAND DIETETIC PACK FRUIT COCKTAIL consists of peaches, pears, grapes, pineapple and Maraschino type cherries, packed in water without any added sugar or salt.

Analysis (submitted by distributor).—Available carbohydrates (total carbohydrate minus crude fiber) 10.0%, fat (ether extract) 0.2%, protein (N × 6.25) 0.4%, ash (minerals) 0.2%, sodium 18 mg. per 100 Gm., potassium 90 mg. per 100 Gm.

Calories.—0.45 per gram; 12.8 per ounce.

Use.—For use in calory-restricted and other therapeutic diets.

MONARCH BRAND DIETETIC PACK PEACHES—YELLOW CLINGSTONE (SLICED OR HALVES) consists of the fruit itself, packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 6.0%, fat (ether extract) 0.2%, protein (N × 6.25) 0.4%, ash (minerals) 0.2%, sodium 23 mg. per 100 Gm., potassium 97 mg. per 100 Gm.

Calories.—0.28 per gram; 7.9 per ounce.

Use.—For use in calory-restricted and other therapeutic diets.

MONARCH BRAND DIETETIC PACK PEACHES—ELBERTA FREESTONE (SLICED OR HALVES) consists of the fruit itself, packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 6.0%, fat (ether extract) 0.2%, protein (N × 6.25) 0.4%, ash (minerals) 0.2%, sodium 21 mg. per 100 Gm., potassium 136 mg. per 100 Gm.

Calories.—0.28 per gram; 7.9 per ounce.

Use.—For use in calory-restricted and other therapeutic diets.

MONARCH BRAND DIETETIC PACK BARTLETT PEARS consists of the fruit itself, packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 9.0%, fat (ether extract) 0.3%, protein (N × 6.25) 0.2%, ash (minerals) 0.2%, sodium 16 mg. per 100 Gm., potassium 51 mg. per 100 Gm.

Calories.—0.40 per gram; 11.3 per ounce.

Use.—For use in calory-restricted and other therapeutic diets.

MONARCH BRAND DIETETIC PACK CUT WAX BEANS consists of the vegetable itself, packed in water without any added salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 4.0%, fat (ether extract) 0.2%, protein (N × 6.25) 1.4%, ash (minerals) 0.7%, sodium 34 mg. per 100 Gm., potassium 97 mg. per 100 Gm.

Calories.—0.24 per gram; 6.8 per ounce.

Use.—For use in low sodium and other therapeutic diets.

MONARCH BRAND DIETETIC PACK SLICED CARROTS consists of Chantenay carrots, packed in water without any added salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 6.0%, fat (ether extract) 0.3%, protein (N × 6.25) 1.0%, ash (minerals) 0.6%, sodium 53 mg. per 100 Gm., potassium 78 mg. per 100 Gm.

Calories.—0.32 per gram; 9.1 per ounce.

Use.—For use in low sodium and other therapeutic diets.

Richmond-Chase Company, San Jose, Calif.

DIET-DELIGHT BRAND ASPARAGUS consists of the vegetable itself, packed in water without any added salt.

Analysis (submitted by manufacturer).—Total solids 5.20%, moisture 94.8%, ash 0.4%, fat 0.1%, protein 1.5%, available carbohydrates (total sugar as invert) 1.5%, crude fiber 0.4%, carbohydrates other than crude fiber (by difference) 2.8% and sodium 70 parts per million.

Calories.—0.13 per gram; 3.7 per ounce.

Use.—For use in calory-restricted diets.

DIET-DELIGHT BRAND SPINACH consists of the vegetable itself, packed in water without any added salt.

Analysis (submitted by manufacturer).—Total solids 6.70%, moisture 93.3%, ash 1.2%, fat 0.5%, protein 2.1%, crude fiber 0.6%, available carbohydrates (total sugar as invert) 0.7%, carbohydrates other than crude fiber (by difference) 2.3% and sodium 215 parts per million.

Calories.—0.16 per gram; 4.5 per ounce.

Use.—For use in calory-restricted diets.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

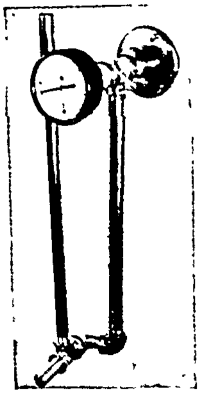
The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

Howard A. Carter, *Secretary.*

HOME WHIRLPOOL AERATOR ACCEPTED

Manufacturer: Home Physical Therapy Equipment Co., 141 East 56th Street, New York 22.

The Home Whirlpool Aerator is a device consisting of pipe, fittings, a venturi and a dial thermometer, designed to replace the ornamental spout on a bathtub or basin in the home and intended to agitate and aerate the water so as to give the patient the benefit of a whirlpool bath at any desired temperature up to that of the hot water supply. There are no electrical connections, home water pressure supplying the power for agitation and aeration on the same principle as that of the common laboratory water-driven aspirating pump. The air is drawn in through a perpendicular air pipe open at the upper end. The weight of the entire device is 2.3 Kg. (5 lb.), and it is 51 cm. (20¼ in.) in length. The shipping weight is 4 Kg. (9 lb.). Evidence was obtained from sources acceptable to the Council indicating that this device was well made and worked as claimed by the manufacturer. The Council on Physical Medicine and Rehabilitation voted to include the Home Whirlpool Aerator in its list of accepted devices.



Home Whirlpool Aerator

TRIPPE DIAPHRAGM INTRODUCER ACCEPTED

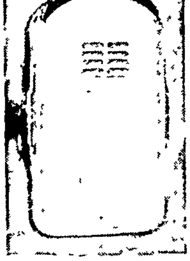
Manufacturer: Trippe Products Company, Hartsdale, N. Y.

The Trippe Diaphragm Introducer is a device intended to facilitate the insertion of vaginal diaphragms for contraceptive purposes. It is 21 cm. (8½ in.) in length, has a swivel tip at one end to facilitate releasing of the diaphragm and a hook at the other end to facilitate removal of the diaphragm, and makes a package weighing 40 Gm. (1⅓ oz.). The Council on Physical Medicine and Rehabilitation voted to include the Trippe Diaphragm Introducer in its list of accepted devices.

NATIONAL HEARING AID, VANITY MODEL 506, ACCEPTED

Manufacturer: National Hearing Aid Laboratories, 815 South Hill Street, Los Angeles 14.

The National Hearing Aid, Vanity Model 506, is an electric device recommended for the rehabilitation of the hard-of-hearing. With the exclusion of the clothing clips at the side, the case measures 129 by 60 by 24 mm. (tapering to 20 mm.). The weight of the case alone is 111.5 Gm. With the batteries, receiver cord and receiver, it weighs 195.5 Gm. The Council's test showed that electro-acoustic measurements, material, construction and performance were as reported by the manufacturer. The Council on Physical Medicine and Rehabilitation voted to include the National Hearing Aid, Vanity Model 506, in its list of accepted devices.

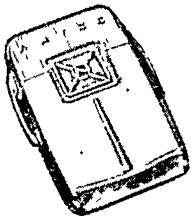


National Hearing Aid, Vanity Model 506

MAICO QUIET-EAR HEARING AIDS, MODELS G AND H, ACCEPTED

Manufacturer: The Maico Company, Inc., 21 North Third Street, Minneapolis 1.

The Maico Quiet-Ear Hearing Aids, Models G and H, are electric devices of conventional shape and arrangement; each measures 60 by 22 mm. in width and thickness. They differ, however, in length and weight. Model G measures 111 mm.; Model H, 99 mm. The transmitter unit of Model G weighs 119 Gm.; that of Model H, 122 Gm. Model G has a slightly higher battery drain and a correspondingly higher acoustic gain. The Council's investigation showed that the electro-acoustic properties, material construction and performance were as represented by the manufacturer. The Council on Physical Medicine and Rehabilitation voted to include the Maico Quiet-Ear Hearing Aids, Models G and H, in its list of accepted devices.



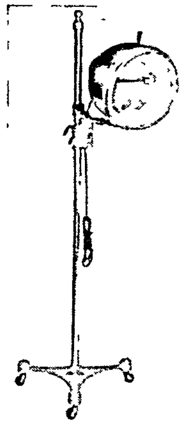
Maico Quiet-Ear Hearing Aid, Models G & H

GLOLITE LUMINOUS INFRARED RAY LAMPS, MODELS 439, 751, 1151 AND 1451, ACCEPTED

Manufacturer: Paul E. Johnson Manufacturers, Inc., 2508 South Parkway, Chicago 16.

The Glolite Luminous Infrared Ray Lamps emit both visible and infrared radiation in the range from 7,000 to 80,000 angstroms for therapeutic purposes. All four lamps are floorstand models and require a source of either direct or alternating current at 110 to 120 volts. Model 439 has a 450 watt heating element. Models 751, 1151 and 1451 require 660, 1,100 and 1,450 watts, respectively. The source of radiation for all lamps is made of resistance wire embedded in a nonmetallic substance. The dimensions and weights are as follows:

Model	439	751	1151	1451
Weight				
unpacked, Kg........	6.5	16.2	18	23.5
unpacked, lb.........	14.5	36	40	52
shipping, domestic, Kg.	8.5	19.5	21.5	27.5
shipping, domestic, lb.	19	43	47	61
shipping, foreign, Kg.	14.5	29	31	39.5
shipping, foreign, lb..	32	64	68	88
Height				
unpacked, cm.........	143	170	182	187
unpacked, in.........	57.5	68	73	75



Glolite Luminous Infrared Ray Lamp

Evidence from sources acceptable to the Council indicated that these lamps are satisfactory generators of radiant heat for therapeutic purposes. The Council on Physical Medicine and Rehabilitation voted to include the Glolite Luminous Infrared Ray Lamps, Models 439, 751, 1151 and 1451, in its list of accepted devices.

MICROTONE "CLASSIC" HEARING AID, MODEL T9, ACCEPTED

Manufacturer: The Microtone Company, Ford Parkway on the Mississippi, St. Paul 1.

The Microtone "Classic" Hearing Aid, Model T9, is a conventional electric hearing aid. For operation it requires a 1.5 volt A-battery and a 15 volt B-battery, both of the zinc-carbon type. With batteries it weighs 164.7 Gm. The external dimensions, excluding the clips, are 78 by 56 by 20 mm. Tubes, microphone, volume control and sealed amplifier unit are all removable. Evidence from acceptable sources as to electro-acoustic properties and clinical performance showed that this instrument was satisfactory. The Council on Physical Medicine and Rehabilitation voted to include the Microtone "Classic" Hearing Aid, Model T9, in its list of accepted devices.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. . . . CHICAGO 10, ILL.

Edited by
AUSTIN SMITH, M.D.

Associate Editor
JOHNSON F. HAMMOND, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Subscription price . . Twelve dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

SATURDAY, NOVEMBER 25, 1950

LET'S KEEP AMERICA HEALTHY

A Guest Editorial

JOHN EDGAR HOOVER
Director, Federal Bureau of Investigation, United States Department of Justice

The life of a nation, in many respects, is similar to the life of an individual. A nation is born, grows in strength, is beset by ills and, unless properly cared for, may succumb to a fatal disease. Like an individual, a nation, in order to survive, must be healthy: physically, intellectually and spiritually. However, though human life, physically speaking, must have an end, a nation, kept strong, virile and healthy by the combined efforts of its citizens, can have life forever.

America, in this mid-twentieth century year, is a strong nation, great in material possessions and rich in spiritual resources. Born amid turmoil, a mere infant among the great powers of Europe, it possessed sturdy tissues, strong muscles and a sound heart. The founding fathers, in laying the foundations of America, planned well. The concepts of democracy, free government and the dignity of the individual were the beacon lights, the compasses of direction, guiding the paths of Americans toward the magnificent achievements of the next century and a half. Freedom of speech, religion and the press, embedded in a government of law, was the matrix in which we developed. America grew quickly from an infant into a bounding youngster and today into the mature responsibilities of adulthood.

But today the germs of an alien ideology, Communism, are attempting to infect the blood stream of American life—and to destroy the America we love and cherish. These Communist germs, spawned in the swamps of iniquity and terror, have blotted out, for one third of the world's population, the sunshine of free thought, independent research and unfettered inquiry. They have "sickened" many nations and literally killed countless persons. These germs are infectious and deadly, easily transmitted and often difficult to detect. This is America's task today, if we are to survive as a nation: to kill these Communist germs and to increase the strength and vigor of American resistance. In other words we must make democracy ever more workable, mature and worth while.

The physicians of America, by the very nature of their training, can render inestimable services in this ideological fight. Medical science is interested in cause and effect, in careful diagnosis, detection of specific symptoms and the prescribing of cures which will eliminate the cause of the malady. Physicians realize the value — in fact, the essential need — of clinical inquiry, unhampered by preconceived prejudices and suppositions; the calm appraisal of facts, and the absolute requirement that injuries and sicknesses be treated by professional, competent hands, not by amateurs and the inexperienced. Hysteria, impulsive actions and decisions not based on all the facts may mean disaster.

The fight against Communism must be waged, if we are to win, on the same principles which have enabled the medical profession to render such magnificent services for the American people. Communism is not something mystifying, impenetrable or impervious to observation. Not at all. Communism, despite its philosophical trappings and double talk veneer, can be analyzed. Through the stethoscope of observation and study, we can learn "what makes it tick." Communism means deceit, hypocrisy and duplicity, the glorification of force and violence, the destruction of liberty and freedom, the triumph of the state over the individual, the enthronement of falsehood, injustice, inequality and terror as the accepted standards of conduct. These are the central themes of Marxism-Leninism; the heartbeats of an atheistic philosophy which denies the spiritual basis of man's existence on earth. If these principles conquer the world, Western civilization—the way of life which has made possible the achievements of America — will be obliterated. The Communists, within minutes, would expunge 2,500 years of human history.

Americans, having learned the true inner meaning of Marxism-Leninism, will be alert to the hypocrisy of Communist siren calls. They will realize that when a Communist speaks of "peace," he really means "war," that when he poses as a champion of "free government" he, in fact, means the dictatorship of a ruthless minority. Communists are disloyal to our democracy; their allegiance is to Moscow. They would siphon away the free spirit of America, destroy the concepts of 1776 and establish a Soviet America—to become an "outpost" for Russian imperialism.

The FBI is the governmental agency designated to protect the internal security of the United States. The President in a directive dated July 24, 1950, called on all law enforcement agencies, patriotic organizations and individuals to report any information coming to their attention concerning espionage, sabotage and subversive activities to the FBI. The FBI, as the investigative arm of the United States Department of Justice, is a fact-finding agency. Our task is to obtain the facts, completely, accurately and impartially. The physicians of America, like other citizens, can best help in the protection of the nation's internal security by reporting immediately to the FBI any information of this nature which might come into their possession. The FBI is not interested in opinions or ideas, idle rumor or malicious gossip—only in facts. Like you, as physicians, we want to know the unvarnished facts of the case. To fulfil our responsibilities, we seek to determine all available facts and then forward them without comment or evaluation to the Department of Justice. The FBI is not a policy-making agency. It does not decide whether there will, or will not, be prosecution. That decision rests exclusively with the Attorney General and his assistants.

Americans can defeat the Communist challenge—and in a democratic manner. Witch hunts, hysteria and vigilante actions are repugnant to the democratic tradition. They weaken the majesty of law and provide the Communist agitators with additional talking points. If each person in America would stop and think, learn to "peel off" the "outer skin" of Communism, often deceptively painted with glittering promises and glorious utopias, and recognize Communism for what it is—terror and injustice—then America would have no fear.

The keys of victory must be alertness, eternal vigilance and the maintenance of calmness. A healthy nation, like a healthy body, must receive the unstinting cooperation of all its component parts; if one part fails to carry its share the whole organism is weakened. America, at this critical hour, must remain strong and healthy. This is the task of each and every person.

MEDICAL EDUCATION IN TIME OF NATIONAL EMERGENCY

The statement of the Joint Committee on Medical Education in Time of National Emergency which appears on page 1111 of this issue, presents the recommendations of the Association of American Medical Colleges and the Council on Medical Education and Hospitals with respect to the conduct of medical education in the present national emergency and its possible sequelae. This statement has been submitted to the Health Resources Advisory Committee to the National Security Resources Board and to the National Advisory Committee on the Selection of Doctors, Dentists and Allied Specialists to the Selective Service System. These committees have been assigned major responsibilities by the President and the Congress for planning and regulating the mobilization and utilization of medical manpower in the present emergency.

The aim of the Joint Committee's statement is to emphasize the importance to the health, safety and interest of both the armed forces and the civilian population of a continuing flow of well trained physicians and to point out that to provide such a flow the quality of medical education must be vigilantly guarded. The statement also points out that of parallel importance is the continued training of graduate students in the basic sciences to provide the personnel trained in these fields so urgently needed to staff the preclinical departments of the medical schools and for the continuation of basic research in the medical sciences.

The statement makes recommendations on the handling of a number of specific problems, including the maintenance of an adequate supply of preprofessional students, the obligation of medical students to serve their country after completion of training, the broadening of the medical curriculum to meet the special medical problems that accompany a national emergency, the need for an increase in the production of physicians, the faculty requirements of the medical schools and the importance of maintaining a strong program for the training of residents.

Because experience has shown that such a program produces immature and incompletely trained physicians, the Joint Committee specifically recommends against the adoption of an accelerated program of the type employed in World War II. Adherence to such a program over a prolonged period would have an unquestioned deleterious effect on the quality of the medical schools. Since these schools constitute in truth a vital national resource, their integrity must be preserved as a matter of national interest. Instead of the accelerated program, the Joint Committee recommends that the academic year be extended in all schools to provide the additional training that will be needed by physicians to meet the special problems occurring in time of national emergency. Thus, an extension of the academic year would make it possible to give more training in such subjects as the prevention and treatment of radiation injuries, bacteriologic warfare, chemical warfare, civilian disaster relief, public health, preventive medicine, and epidemiology in relation to disaster areas, traumatic medicine and surgery, industrial medicine and rehabilitation and utilization of manpower.

On the basis of the experience with the AST and V-12 programs in World War II, the Joint Committee also recommends against placing medical students in uniform or having them subsidized as a group by the government. Instead it recommends that consideration be given to a program of government scholarships to be awarded on the basis of economic need and demonstrated academic superiority to students recommended by the medical schools. The committee also recommends that there be consideration of a program of government loans for students needing such assistance.

The statement of the Joint Committee has been carefully and thoughtfully prepared after conferences extending over more than four months with medical educators, representatives of government agencies and representatives of the medical profession. Of much help were the extensive studies made after the end of

World War II by the Committee on Preparedness for War of the Association of American Medical Colleges. This statement presents the carefully weighed thoughts of outstanding medical educators and should receive the serious consideration that it deserves.

MIDCENTURY WHITE HOUSE CONFERENCE

Concern for the health and welfare of children is an old American habit. The repetition of this concern by the decennial White House Conferences has now become a custom. At approximately 10 year intervals since President Theodore Roosevelt called the first conference in 1909 to plan for the care of dependent children, the president in office has gathered together the leaders in health, welfare and education to take stock of current practices and lay plans for further improvement of the children of the nation.

Among the many recommendations of the first White House Conference was the creation of a Children's Bureau. This Children's Bureau, created in 1912, gave leadership to the second White House Conference in 1919 under President Woodrow Wilson, as the closing activity of the "Children's Year." This conference was concerned essentially with child welfare standards and the health of children and mothers. Though many of its recommended child welfare laws and child health practices were controversial, those with merit have survived.

President Herbert Hoover called the third White House Conference on Child Health and Protection in 1930 to study the "present status of the health and well-being of the children of the United States . . . to report what is being done, and to recommend what ought to be done and how to do it." This third conference widened the range so that all children were included, not only those who were dependent or handicapped.

The 1940 White House Conference on Children in a Democracy was called by President Franklin D. Roosevelt. It was much broader in scope than any of the others, considering for the first time economic resources, religion, housing, play and recreation, as well as health, social welfare and education. One of the outcomes was the impetus given to the programs for handicapped children.

The Midcentury White House Conference on Children and Youth, to be held in December 1950, "bases its concern for children on the primacy of spiritual values, democratic practice and the dignity and worth of every individual. Accordingly, the purpose of the conference shall be to consider how the mental, emotional, and spiritual qualities essential to individual happiness and responsible citizenship can be developed in children and what physical, economic, and social conditions are deemed necessary to this development."

It is apparent that the Midcentury White House Conference will attempt to organize all the information available on what influences healthy personality development and, on the basis of this information, point the way to better organized mental hygiene activities. Qualified persons concerned with the home, the church, the school, health service, social service, recreation, employment and a number of other activities will pool their information and discuss ways to plan proper guidance during childhood and adolescence.

Physicians are interested in the physical and emotional problems of children. They should, therefore, be vitally interested in the deliberations of the Midcentury White House Conference. Physician delegates will have an opportunity to influence the thinking of the people of the United States on how best to accomplish this important objective of healthy personality development.

The fact that the Midcentury White House Conference is held when there exists a sharp controversy over compulsory health insurance should not prevent physician delegates from participating in the conference and contributing to its development. White House Conferences have become an American tradition. They are held each 10 years irrespective of the party in power and have been generally constructive. Physicians should actively participate in the conference to promote constructive results and prevent political manipulation.

MATERNAL DEATHS—ONE IN A THOUSAND

The Journal takes pride in announcing that for the first time in history the maternal mortality rate for a large nation—the United States of America—has been pushed slightly below the apparently irreducible minimum of 1 maternal death per 1,000 live births. When the 1949 rates for Sweden, Norway, Denmark, the Netherlands and New Zealand become available, one or more of these small countries with homogeneous populations may join the United States in the select group of countries with maternal mortality rates of 1.0 or less. The 1933 rates for the United States, Sweden and (the whites of) New Zealand were 6.2, 3.1 and 4.4. Reductions in maternal mortality in the United States are, however, remarkable because they have been made in a population which contains, as a result of immigration, many diverse groups from the health standpoint. According to compilations of the number of maternal deaths and live births in the several states by the Bureau of Medical Economic Research of the American Medical Association, the provisional 1949 maternal mortality rate for the entire United States — counting all maternal deaths among all classes and groups in the entire country—was closer to 1.0 than to 0.9 on the basis of the fifth revision of the Manual of the International List of Causes of Death (1938). Some of the state and city health departments used the fifth and others used the sixth revision (1948) of the International List in coding the causes of deaths in 1949. Hence, the "true" national maternal mortality rate for 1949, a transition year in coding the causes of death, may never be known. The 1948 rate was 1.2.

Rarely has THE JOURNAL had the opportunity to call to the attention of the world in such definite terms the extraordinary accomplishments of the American medical profession, aided and abetted by auxiliary personnel and unequaled hospital facilities. But it is more than a story of tremendous medical progress. The fact that the chances of an expectant mother surviving the diseases of pregnancy, childbirth and the puerperium are now better than 999 out of 1,000 is truly a story of human and social progress.

This great record in maternal care takes the medical historian back to the days of Semmelweis in Austria, who led the medical profession toward the ideal of extreme cleanliness in maternity cases—the true pioneer of antisepsis in obstetrics. Previously, Oliver Wendell Holmes had pointed out the contagiousness of puerperal fever. One also thinks of Lister, a pioneer in antisepsis. It also takes one back to the late 1920's and early 1930's—when many of the soldiers, sailors and marines now fighting in Korea were born—when the maternal death rate was seven times as high as in 1949.

This glorious achievement of medical progress has not been limited to the wealthier states with almost exclusively white populations. In 1949 there were 30 states with rates less than 1.0, two at exactly that level and only 17 above. The highest state rate of 2.3 in 1949 for Mississippi was only one half of the lowest state rate, 4.3, in 1933. An examination of the rates for the different states indicates areas in which further improvement can be expected, but it is clear that maternal mortality is no longer a nationwide problem. Of course, it will be more difficult to maintain an extremely low level as the rate approaches even closer to 0.

What accounts for this phenomenal reduction in maternal mortality from 6.2 in 1933—the first year in which all of the states were in both the death and birth registration areas—to less than 1.0 in 1949? The increasing percentage of births in hospitals is an important factor, although improvements in the medical care provided in home births have been pronounced. A second factor is the development of a concept of prenatal care which stresses early diagnosis of some of the conditions which formerly contributed to death. Health education, particularly that given by the public health nurse in prenatal care, has aided greatly. In many cities the maternal health program of the local health department has been effective in reducing maternal mortality. In the actual treatment of complications, the basic factors in the last decade and a half have been the administration of sulfonamides, antibiotics and whole blood or blood derivatives. But steady improvement in undergraduate and postgraduate medical training in obstetrics is the most important factor in welding together these other forces. Unlike the trend in many nations, the number of births attended by midwives in the United States is being rapidly reduced. For a number of years many state and county medical societies have had special committees which review every maternal death in their areas and use their findings as a basis for improving all aspects of prenatal, intranatal and postnatal care. These study groups of organized medicine have been a tremendous factor in preventing maternal deaths and in producing phenomenally low maternal mortality rates.

This is, indeed, a story of human as well as medical progress. The fact that the chances of survival for the mother are better than 999 out of 1,000 should bring comfort and consolation in a troubled era to expectant mothers and their husbands, their children and their parents. Childbearing has been made quite safe.

SPECIALTY JOURNALS OF THE AMERICAN MEDICAL ASSOCIATION

The October numbers of the nine specialty journals of the American Medical Association were published with a number of changes which are intended to identify them more closely with the Association and to help meet certain problems facing these journals. The titles of the publications have been changed to include the designation "A. M. A." as part of the title, so that the new titles appear as, for example, *A. M. A. Archives of Surgery* and *A. M. A. Archives of Internal Medicine.* This change was undertaken after consideration by the chief editors of the journals and their editorial boards and the Board of Trustees.

The primary purpose of the use of the letters A. M. A. is to effect a closer identification of these journals with the American Medical Association in the minds of the readers and others who learn of the journals. Although the explanatory statement "Published monthly by the American Medical Association" appears on the bottom of the cover page, there has been some misunderstanding concerning the sponsorship of these journals. The periodicals are now identified in much the same way as other allied specialty journals are identified with the organization that sponsors them. Consideration was given to the use of the full name of the Association as, for example, "American Medical Association Surgery" and "American Medical Association Archives of Surgery." However, after consultation with librarians, book publishers and others, it was concluded that it was preferable to use the identifying symbol A. M. A.

Concurrently with the change in title, the color of the cover was changed to white with the titles being identified in different colors. An attempt was made to select a color for the title that would match the former color of the cover. This change also was made to indicate the close relation of the specialty journals. In addition, it was believed that there would be an improvement in the appearance—which has been borne out by the comments from other publishers—and permit use of this space for advertising purposes. While the specialty journals are not intended to be a source of profit for the American Medical Association, costs of labor and paper, *to mention just two items, have increased so much in* the past two years that various means had to be sought to meet in part these increased expenditures. The table of contents, which formerly was found on the back cover page, has been moved to the pages immediately preceding the first article or editorial.

These changes were announced to subscribers through a special statement in the September number of each of the journals, and a reference to the change was made in the report of the Board of Trustees in the Oct. 21, 1950, issue of THE JOURNAL. Several inquiries have arisen from libraries regarding the cataloging or indexing of the journals with the new titles. Beginning with volume 49 (January-June, 1951) the *Quarterly Cumulative Index Medicus* will list these journals under the new titles, so that the letters A. M. A. will be considered as an integral part of the titles. For the completion of volume 48 (July-December, 1950) the *Quarterly Cumulative Index Medicus* will continue to use the old titles without the designation A. M. A. The changes were made before the current volume numbers were completed because of certain production difficulties which required a number of changes in October.

ORIGIN OF THE BILE PIGMENTS

One of the most widely accepted statements in basic science medical literature is that the bile pigments are derived from the breakdown of blood hemoglobin. The evidence for this view dates back at least 100 years to the now classic observation of Virchow [1] that the orange pigment, "hematoidin," found at the site of old blood extravasations were similar to bilirubin. Many years later, Hans Fischer and his co-workers [2] conclusively demonstrated that "hematoidin" was identical with bilirubin. Other well known investigators who contributed evidence in support of the above view include Kühne, Herrmann and, more recently in this country, Whipple and his group,[3] who demonstrated that the heme of hemoglobin is almost quantitatively converted to bilirubin in the dog.

Currently, the problem of the origin of the bile pigments is being reinvestigated at Columbia University with the modern isotopic tracer technic. These studies in general confirm the earlier classic view that the bile pigments are derived from destroyed hemoglobin of red cells. Hematin which had been previously "labeled" with isotopic N^{15}, by the administration of glycine containing N^{15}, was found to be readily converted to bile pigment in the dog.[4] The isolated bile pigments were found to contain the isotopic N^{15} derived from the administered hematin. Similar results were obtained in normal human subjects.[5] However, the additional *rather unexpected observation* was made that at least 11 per cent of the bile pigment was derived from sources other than the breakdown of hemoglobin. The normal male subjects were given glycine containing N^{15}. Previous work by this group of investigators has demonstrated that the glycine is incorporated into the heme portion of the hemoglobin molecule. Furthermore, these investigators had shown that the labeled hemoglobin remains in the circulating erythrocytes for approximately 120 days, until the red cell is destroyed. Thus, if bile pigment is derived solely from hemoglobin liberated from destroyed erythrocytes, then no significant amount of N^{15} should be found in the bile pigment until nearly 120 days after the administration of N^{15} labeled glycine. Actually, a prompt and pronounced rise in N^{15} containing bile pigment (stercobilin isolated from the feces) was found. A second, expected rise approximately 100 to 140 days after the administration of the N^{15} glycine was observed. Undoubtedly the labeled bile pigment in this case was derived from the destroyed N^{15} labeled hemoglobin. The early rise in labeled bile pigment was even more pronounced in patients with pernicious anemia [6] and with congenital porphyria.[7] A large part, at least 31 per cent, of the bile pigment, stercobilin, obtained from stools of the latter patient was formed from sources other than the hemoglobin of the mature erythrocyte.

The nature of the unknown precursor of bile pigments has not yet been determined. Several possibilities have been suggested.[5] The "extra" bile pigment may be derived from hemoglobin which has escaped incorporation into erythrocytes, or from myoglobin as suggested years ago by Whipple,[8] or from the cytochromes or catalase, or from porphyrins or heme not utilized for hemoglobin synthesis or perhaps from a direct synthesis of bile pigment not involving the porphyrins. The solution of this problem should add considerably to the understanding of the origin and metabolism of the bile pigments. Thus it appears today that the long-established view that the bile pigments are derived solely from the breakdown of hemoglobin must now be modified to include other, as yet unidentified, probably nonhemoglobin, precursors in normal man and particularly in patients with pernicious anemia and congenital porphyria.

---

[1] Virchow, R.: Arch. f. path. Anat. u. Physiol. u. klin. Med. **1**:379, 1847.

[2] Fischer, H., and Reindel, F.: Ztschr. f. physiol. Chem. **127**: 299, 1923.

[3] Hawkins, W. B., and Whipple, G. H.: Am. J. Physiol. **122**: 418, 1938.

[4] London, I. M.: J. Biol. Chem. **184**: 373 (May) 1950.

[5] London, I. M.; West, R.; Shemin, D., and Rittenberg, D.: J. Biol Chem. **184**: 351 (May) 1950.

[6] London, I. M., and West, R.: J. Biol. Chem. **184**: 359 (May) 1950.

[7] London, I. M.; West, R.; Shemin, D., and Rittenberg, D.: J. Biol. Chem. **184**: 365 (May) 1950.

[8] Whipple, G. H., and Robscheit-Robbins, F. S.: Am. J. Physiol. **78**: 675, 1926.

WASHINGTON NEWS

(From the Washington Office of the American Medical Association)

The New Congress

The *Congressional Quarterly*, a legislative information service, concludes that the administration will have six fewer supporters for its domestic policy in the new Senate. Eight senators-elect are listed as certain to oppose Mr. Truman's chief domestic proposals: Richard Nixon (Republican, California), George A. Smathers (Democrat, Florida), Herman Welker (Republican, Idaho), Frank Carlson (Republican, Kansas), Willis Smith (Democrat, North Carolina), James Duff (Republican, Pennsylvania) and Wallace F. Bennett (Republican, Utah). The net loss is expected to be reduced to six because of support for Mr. Truman from Thomas C. Hennings (Democrat, Missouri) and A. S. (Mike) Monroney (Democrat, Oklahoma).

Twenty-three Democratic first-termers elected in 1948 (all mid-westerners) were among that party's 28 House casualities. . . . The Congress actually will not be very "new"; about 85 per cent of the membership served previously in the House or Senate, including 18 out of office during the Eighty-First Congress. . . . Defeat of Representative Vito Marcantonio (American Labor Party, New York) means no minor party representative for the first time in 40 years. . . . Frazier Reams of Ohio, a long time Democrat who won as an Independent, will vote with Democrats on organizing the House, but says he will "remain aloof" from the party. . . . Southerners, as usual, dominate committee chairmanships, with eleven. Incidentally, committee chairmen average six years younger, 60 instead of the 68 of the Eighty-First Congress. . . . Even so, chairmen will average seven years older than the average age for both houses, about 53. . . . Representative Robert L. Doughton (Democrat, North Carolina) continues to hold his title as the oldest member, 87, while the youngest will be reelected Representative Lloyd M. Bentsen Jr. (Democrat, Texas), who will be 29 the day Congress opens. . . . There will be no change among House leaders, but a major reshuffling of Senate leadership will be required because of election defeats. . . . Of the nine representatives who tried for the Senate, four were successful; of five who tried for governor, two lost.

The Present Session of Congress

Theoretically, the present session opening next week could turn its attention to the long list of health bills not passed in the last two years. But practically, this is impossible. Extension of rent controls, new taxes, revision of the antisubversive bill, Alaskan and Hawaiian statehood, defense and other top priority bills should keep House and Senate occupied until time for adjournment in December. When this Congress passes out of existence, it will take with it such unfinished medical legislation as aid to medical education, aid to local public health units, aid to school health programs, national compulsory health insurance and the various plans to stimulate voluntary insurance. However, one can expect to see all these bills come to life again in the new Congress after the first of the year.

Military Notes

Although the Army as a whole has not been able to put into effect the "point system" for release of reserves, its medical department is more fortunate. A spokesman said the Surgeon General's office in most cases still expects to release World War II medical reserves from active duty when they have completed necessary training and when replacements are available. With a steady supply of physicians assured by the doctor-draft, the medical department at the present time is not experiencing the same manpower difficulties as are other branches. But, as usual, it will not be possible to apply the release policy in every case. . . . Deane W. Malott, president of the National Association of State Universities and Association of Land-Grant Colleges, spoke against the proposal to defer high-ranking students in all courses. He advocated that all men be required to serve 18 months to two years at a time of their choice between the ages of 18 and 26. This, he pointed out, would give the military services a variety of professionally trained and skilled men and would lessen the chance of good students rushing to "easy" courses where their grades would be higher. . . . Endorsing a recommendation of Dr. Howard A. Rusk's Committee on Veterans Hospitals, VA Medical Director Dr. Paul B. Magnuson points out that VA has the facilities and beds to care for many of the Defense Department's wounded returned from overseas but that there has been no request for use of these facilities. He mentioned care for amputees, artificial limb service, training and rehabilitation and plastic surgery as specific fields where VA is thoroughly equipped to care for patients. In the absence of a system for transferring patients, he says military services are wasting medical manpower. . . . In another speech recently Dr. Magnuson urged voluntary workers to help VA get rehabilitated men to leave VA hospitals. He warned against turning VA hospitals into "country clubs," where men tend to stay longer than necessary, denying others hospital care.

Deferment of Interns and Residents

In an effort to insure the deferment of interns and residents who are essential to the community welfare in their present positions, Dr. Howard A. Rusk has sent special instructions to state chairmen of voluntary advisory committees. Dr. Rusk, chairman of the National Advisory Committee to Selective Service, emphasized that evidence of essentiality must be presented to the registrant's local board, which is not necessarily located in the same community as the hospital. He asked state chairmen and local committees to "support fully" before local boards any claims of essentiality which may be presented in behalf of a registrant whose hospital is located elsewhere.

Public Health Service Needs Doctors

The Public Health Service, faced with civil defense as well as overseas responsibilities, is finding difficulty in recruiting professional personnel. Although the service has campaigned constantly for physicians, it was able to add only 30 commissioned medical officers to its rolls between July 1 and mid-October. The totals are 1,038 and 1,068. In addition, the Public Health Service has 114 full time Civil Service physicians and 150 part time. The Division of International Health (PHS) at present is attempting to sign up 15 qualified physicians for the ECA program in Indochina, Thailand, Burma and Indonesia. In these areas emphasis will be placed on the prevention and control of tropical diseases. The Public Health Service is in immediate need of three physicians to serve with its mission to Liberia, which operates under State Department funds and also carries on preventive and control activities. In Greece, the Public Health Service has conducted a program for three years, concentrating on hospital rehabilitation, water supply installations, tuberculosis control and nurse training. At least 100 physicians will be needed for foreign service in the next year, when a number of new programs will be set up. Under consideration are projects for Turkey, Iran, Formosa and the Philippines. Although base pay for commissioned officers ranges from $4,500 to $5,500 per year, various allowances more than double the total income. Civil Service appointments carry salaries of $6,400 to $8,800, with 25 per cent additional allowed for service in Southeast Asia and quarters allowances that vary from $2,000 to $2,400.

The Public Health Service is scheduling examinations for assistant surgeons and senior assistant surgeons in the PHS Regular Corps. Examinations will be held throughout the country on Feb. 12, 13 and 14, 1951, but applications must be in by January 15. Applications and information may be obtained from the Surgeon General, U. S. Public Health Service, Federal Security Agency, Washington 25, D. C., Attention: Division of Commissioned Officers.

Survey of Health Services

Directors of the special congressional survey of health services say that information is coming in at a satisfactory pace, but they are not able to say whether a complete report will be ready by next February 1, the deadline set by the Senate Labor and Public Welfare Committee. The survey, to cover state and local health facilities as well as voluntary plans, is being handled by a committee under the chairmanship of Dr. Dean Clark. Blue Cross and Blue Shield organizations expect to turn in information on their operations by December 1, as do commercial insurance companies. Additional data will be supplied on medical plans operated by such nonprofit organizations as cooperatives and labor unions, and A.M.A.'s Chicago headquarters will gather details on medically sponsored programs not under Blue Shield.

Stockpile of Medical Supplies

The federal government again has come under criticism from a New York state official for delay in setting up medical stockpiles under the civil defense program. In approving allocation of $500,000 in state funds for this purpose, Governor Thomas E. Dewey said, "Apparently the federal government not only has no plans but no intention of providing medical supplies, and these, of course, are of first importance." A few weeks ago similar views were expressed by Dr. Herman Hilleboe, New York health officer. In reply, a National Security Resources Board spokesman points out that this agency has neither money nor authority to start regional reserves of medical supplies and equipment. New York and NSRB representatives are expected to meet soon in an effort to reach some agreement on respective responsibilities. Governor Dewey said supplies to be purchased by the state will be mainly drugs and antibiotics, blood transfusion sets, burn and treatment supplies, fracture supplies, syringes and needles and surgical kits.

Food and Drug Administration Convictions

The Food and Drug Administration's report on convictions for October deviates from its usual prosaic style to tell how agents tracked down two herb doctors in the hills of Oklahoma and in Memphis, Tenn. In the first case a Food and Drug inspector visited the "Indian herb doctor" in Oklahoma as a "patient." After looking at the agent's hands and nails, the "doctor" diagnosed the ailment as "sugar diabetes" and prescribed a concoction three times a week. In line of duty the inspector had to gulp down a glass of the stuff. Re-orders of the herbs (in fruit jars with the patient's name the only label) were delivered by "runners," who crossed state lines in private cars. The "Indian herb doctor" was permanently enjoined against interstate shipping and labeling of his wares.

The second case, the "African herb doctor" from Memphis, fined $9,000 and given nine years in prison, concerns a West African who prepares herbs from a book by Dr. Culpepper, an English physician who died in 1640. The "African herb doctor" was not a stranger to the law. Previously, he had been convicted in Michigan, Arkansas and Tennessee for illegal practice of medicine, served a jail term for mail fraud and had signed a Federal Trade Commission stipulation in 1943 to the effect that a hair-growing formula was ineffective. This time he was convicted on 15 counts for shipping four herbal medicines misbranded with false claims.

Elsewhere, 10 druggists were convicted for selling barbiturates and other potent drugs without prescription. There were several other cases of misbranding and shipping faulty products.

Notes

Two new National Advisory Councils, authorized by the last session of Congress, have been set up within the National Institutes of Health. At the time it announced members of the new councils (Arthritis and Metabolic Diseases and Neurological Diseases and Blindness) NIH also announced names of new members appointed to existing councils. Eighteen of the 43 new appointments go to physicians.

Members of the National Advisory Arthritis, Rheumatism and Metabolic Diseases Council are William P. Holbrook, M.D., Tucson, Ariz.; Clyde E. Wildman, president, De Pauw University, Greencastle, Ind.; Weston Howland, head New England chapter of Arthritis and Rheumatism Foundation, Milton, Mass.; C. James Watson, M.D., chairman, Department of Medicine, University of Minnesota, Minneapolis; Philip S. Hench, M.D., chief, Department of Rheumatic Diseases, Mayo Clinic; Floyd B. Odlum, business executive, New York City; Richard H. Freyberg, M.D., associate professor of clinical medicine, Cornell Medical College, New York City; Maxwell M. Wintrobe, M.D., head, Department of Internal Medicine, University of Utah, Salt Lake City, and John A. Reed, M.D., clinical professor of medicine, George Washington University Medical School, Washington, D. C.

Members of the National Advisory Neurological Diseases and Blindness Council are Percival Bailey, M.D., professor of neurology and neurological surgery, University of Illinois Medical College, Chicago; Cecil A. Johnson, lawyer, Chicago; Henry W. Woltman, M.D., chairman, Neurology and Psychiatry sections, Mayo Foundation Graduate School; George Baehr, M.D., professor and director of clinical research, Columbia University; Leonard Goldenson, New York; Dan Gordon, M.D., assistant professor of clinical surgery, Cornell Medical College, New York City; H. Houston Merritt, M.D., director, Neurology Institute, Presbyterian Hospital, New York City; Cornelius H. Traeger, M.D., head, National Society for Multiple Sclerosis, New York; Dilworth W. Woolley, Rockefeller Institute, New York; J. S. Ulmer, lawyer, Cleveland; P. F. Lucchesi, M.D., professor of pediatrics, Temple Medical School, Philadelphia, and W. Kuhn Barnett, educator, Richmond, Va.

Other newly appointed physicians are Robert F. Loeb, recently appointed to the National Science Foundation and professor at Columbia University—appointed to the National Advisory Health Council; Irvine H. Page, director, Cleveland Clinic Foundation, and member of the National Research Council, and Hugh J. Morgan, physician and chief of Vanderbilt University Hospital, Nashville—appointed to the National Advisory Heart Council. William Malamud, professor and head, Department of Psychiatry, Boston University Medical School, and Samuel B. Wortis, director, Psychiatry and Neurological Service, Bellevue Medical Center, New York University—appointed to the National Advisory Mental Health Council.

Each advisory council meets for one or two days quarterly to review applications for grants and make recommendations to the Surgeon General as to which grants should be issued. Grants are previously screened by NIH, but the councils set the priority of grants and the amount to be spent. These grant programs now total about $50,000,000 per year, compared with about $4,000,000 in 1946. Members of the councils meet together once a year to discuss interrelated programs of the various divisions of NIH. They receive $50 per diem while actually engaged in council work but no salary.

GOVERNMENT SERVICES

Army

New Type of Army Medical Company

A preventive medicine unit of company size, first of several of its kind now being organized by the Army Medical Service, has arrived in the Far East Command for duty in Korea, Major Gen. R. W. Bliss, the Surgeon General, has announced.

Successor to the malaria survey and malaria control detachments of World War II, the new company has functions beyond the scope of previous units of this type. In addition to malaria control and survey, the units will be responsible for inspections of field sanitary conditions and control of insect-borne, water-borne and other diseases. When acting in support of combat troops, these companies will operate as far forward as necessary to accomplish their mission.

The new preventive medicine companies are composed of six officers, one warrant officer and 59 enlisted men. Units are being organized at Brooke Army Medical Center, Fort Sam Houston, Texas. Officer personnel are qualified entomologists or sanitary engineers and the enlisted men have had training in one or more phases of preventive medicine. The preventive medicine company is composed of a headquarters section, to accomplish command and administrative work, and a preventive medicine service subdivided into a hygiene and sanitation section, survey section and three control sections.

The hygiene and sanitation section investigates water points, waste disposal, troop shelter, bathing and laundering facilities, mess sanitation, contamination of food or water and adequacy of clothing. The survey section inspects sanitary discipline in other units, determines the incidence and distribution of insect-borne and similar diseases and checks on the origin of cases of these diseases admitted to hospitals in its area. The control section furnishes technical supervision for work details engaged in sanitary control measures, conducts on-the-job training of soldiers in insect and rodent control measures and recommends corrective measures for other units.

Public Health Service

Regular Corps Examination for Medical Officers

An examination for appointment of medical officers in the Regular Corps of the Public Health Service will be held Feb. 12-14, 1951, at points throughout the United States. Applications must be received no later than Jan. 15, 1951. Appointments will be made in the grades of assistant surgeon (equivalent to Navy rank of lieutenant [j.g.]) and senior assistant surgeon (equivalent to lieutenant). Appointments are permanent in nature and provide opportunities to qualified physicians for a career in clinical medicine, research and public health. Applicants who successfully complete this examination may ordinarily expect appointment as soon as they become eligible.

The requirements for both grades are United States citizenship, at least 21 years of age, graduation from a recognized school of medicine and, for assistant surgeon, at least seven years of educational training and professional experience subsequent to high school. For senior assistant surgeon, at least 10 years of educational training and professional experience subsequent to high school are required. Physicians who are successful in the examination and are now serving internships will not be placed on active duty in the Regular Corps until completion of internship.

The examination will include an oral interview, physical examination and written objective tests covering the professional field. The written professional examination for the grade of assistant surgeon will cover basic medical sciences, internal medicine (including neurology and psychiatry), therapeutics and toxicology, pediatrics, and medical problems of obstetrics and gynecology, surgery, orthopedics, gynecology, obstetric procedures, and preventive medicine and public health. The examination for senior assistant surgeon will include the above subjects with the exception of anatomy.

Physical requirements: Candidates must be physically qualified as a result of an examination performed at a Public Health Service facility; it is recommended that applicants complete this examination as soon as possible to obviate the necessity of taking the written examination if found not physically qualified. Candidates who have a physical defect, or who have had serious illness or injury, should attach a statement to their applications outlining in detail the nature of such illnesses or injuries, treatment received, periods of hospitalization, length of absence from work and present status.

Entrance pay for an assistant surgeon with dependents is $5,686.56 per annum, and for senior assistant surgeon with dependents, $6,546. These figures include the $1,200 annual additional pay received by medical officers as well as subsistence and rental allowance. Officers on active duty are not eligible to receive disability compensation from the Veterans Administration. Retirement pay after 30 years of service or at the age of 64 is three-fourths annual basic pay at the time of retirement. Retirement for disability is authorized. Additional benefits include periodic pay increases (time served as a member of the armed forces is credited), 30 days' annual leave, sick leave, full medical care and the usual privileges extended to officers of the military forces. Information may be obtained from the Surgeon General, United States Public Health Service, Washington 25, D. C. Attention: Division of Commissioned Officers.

Air Force

Director of Research

Col. Paul A. Campbell, who recently gave up private practice in Chicago to accept a regular commission in the air force, has returned to the Air Force School of Aviation Medicine, Randolph Air Force Base, Texas, as director of research. For many years he specialized in otolaryngology, which he taught at Rush Medical College, the University of Illinois and Northwestern medical schools. He made his first solo flight 10 years ago. He is program chairman for the Aero Medical Association, has served as medical consultant for United Airlines, senior attending staff surgeon for Wesley Memorial Hospital, Chicago, and consultant for the Air Force Surgeon General. Colonel Campbell has published many articles, papers and has written chapters for medical textbooks. He served in Europe during World War II. His decorations include the Legion of Merit, the Army Commendation Medal and the Royal Order of the Sword of Sweden.

Personal

Col. Robert J. Platt, former surgeon of the Far Eastern Air Force, has been named commandant of the Alabama branch of the Air Force School of Aviation Medicine. The new branch of the Air Force medical school will be located at Gunter Air Force Base, Montgomery, Ala., where all flight nurse and airman training will be conducted. Colonel Platt is a 1927 honor graduate of the School of Aviation Medicine.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARIZONA

Mental Health Program.—A meeting to activate the newly formed Arizona Association for Mental Health was held November 13 in Phoenix. The organization first came into being at planning sessions held in Phoenix last August 3, when Arizona became the thirty-fourth state to organize a citizen's mental health association.

Further aid in developing a mental health program for the state was made recently by three mothers' clubs of Nogales, which sent a check to the state treasurer to deposit to the account of a special mental health fund for Arizona.

CALIFORNIA

Personal.—Dr. Eugene M. Farber has been promoted to the director of the Division of Dermatology and associate professor of dermatology (medicine) at Stanford University School of Medicine, San Francisco. He is also chief of dermatology at Stanford University Hospitals, San Francisco.

Hospital News.—The new unit of Mount Zion Hospital, San Francisco, which was opened in November, provides over 150 additional beds, making a new total of 325 for the entire hospital. The Harold Brunn Institute for Cardiovascular Research will occupy about 7,000 square feet, in association with cancer and tuberculosis research carried on by staff members.

Basic Science Courses.—St. Mary's Hospital in San Francisco will present basic science courses in applied anatomy and physiology and biochemistry throughout the year The anatomy lectures are being presented by Dr. Harold H. Lindner, lecturer in anatomy and clinical assistant in surgery at the University of California Medical School, Berkeley-San Francisco These lectures are being given on Thursdays from 7:45 p. m. to 9:15 p. m. There will be no lecture the week of Thanksgiving. Subjects of lectures beginning November 30 and for the succeeding weeks through February include the tongue, cervical nerve tracts, prevertebral area of the neck, cervical vertebrae, the axilla, female breast, thoracic wall, mediastinum, lungs and pleura and anterior abdominal wall. The biochemistry and physiology lectures are being given on alternating Saturdays from 9:00 to 10:00 a. m. by Harold A. Harper, Ph.D., lecturer in surgery at the University of California School of Medicine, San Francisco, and director of the chemistry laboratory of the hospital. Beginning with the November 25 lecture, the subjects will be physiology of the kidney, physiological and chemical aspects of shock, physiological basis of liver function tests, enzymes in tissue metabolism and carbohydrate metabolism.

IDAHO

State Association Committees Appointed.—The Idaho State Medical Association's Armed Forces Advisory Committee was elected by members of the component society committees at a meeting in Boise October 21. Dr. Orval F. Swindell, Boise, former president of the association and secretary-treasurer of the Welfare and Grievance Committee, was named chairman. Other members are Drs. Clifford O. Armstrong, Moscow; Fred A. Pittenger, Boise; Charles A. Terhune, Burley, and Harvey E. Guyett, Idaho Falls. Dr. Verne J. Reynolds, Boise, has been appointed chairman of the association's Civilian Defense Committee. Other members include Drs. Judson B. Morris, Boise; Lester L. Shupe, Caldwell; Henry C. Turner, Pocatello; Dauchy Migel, Idaho Falls; Fred T. Kolouch, Twin Falls; James W. Hawkins, Coeur d'Alene; Robert E. Staley, Kellogg, and James H. Bauman, Lewiston.

ILLINOIS

Lake Pollution Suit Ending.—Dismissal of the last defendants in the suit brought by the State of Illinois seven years ago against the State of Indiana and 24 of its cities and industries to compel a halt on Lake Michigan pollution has been recommended to the United States Supreme Court. All the defendents, it is reported, have complied with the court's requirements at a cost of nearly $15,000,000. Pollution was a threat to the metropolitan water supply and recreational areas caused by Indiana's dumping of raw sewage and untreated industrial wastes into Lake Michigan and streams emptying into it. The original suit was filed by the Illinois Attorney General Oct. 9, 1943 against Indiana and the cities of Gary, Hammond, East Chicago and Whiting, and in 1945 twenty industries were added as co-defendants. Thereafter lawyers for both sides stipulated antipollution measures that, when completed, would allow the defendants to be dropped from the suit.

Chicago

Chicago Medical Society.—Two guest speakers will address the Chicago Medical Society at its meeting December 13 at 8:00 p. m. in the John B. Murphy Memorial Auditorium. Dr. Perrin H. Long, Baltimore, will speak on "Current Clinical Usage of Antibiotics," and Comdr. Thomas J. Canty (MC, USN), Oakland, Calif., on "Amputation Surgery and Recent Developments in Artificial Limbs."

Institute of Medicine Annual Meeting.—Dr. Stanley Gibson, professor of pediatrics emeritus, Northwestern University Medical School, will deliver the presidential address at the thirty-fifth annual meeting of the Institute of Medicine of Chicago December 5 at the Furniture Club of America. His subject will be "Diagnosis of Congenital Cardiovascular Anomalies Amenable to Surgery."

Ophthalmological Society Prize.—The Chicago Ophthalmological Society announces that friends of the late Dr. Louis Bothman have contributed money through his medical fraternity, Phi Delta Epsilon, for a yearly prize of $100 for the best paper submitted to the society by an ophthalmologist who has completed his training within the previous six years. Such paper may be used as an entrance thesis for membership in the society. Papers for the first award should be submitted to the secretary of the society, Dr. Gail R. Soper, 636 Church Street, Evanston, Ill., not later than July 1, 1951.

INDIANA

Monthly Series of Telephone Seminars.—The Indiana University School of Medicine, with the cooperation of the Indiana State Medical Association, has scheduled a monthly series of telephone seminars in postgraduate medical education, which will be carried by leased wires to gatherings of physicians throughout the state. The first of these was presented November 7. Success of a test program from the auditorium of the medical school by closed telephone circuit to a meeting of the St. Elizabeth hospital staff in Lafayette led to endorsement of the program by the medical school council and the committee on medical education of the state association. Fifteen county societies listened in on the program. This method permits the local doctors of the county to attend these meetings without the necessity of long and hazardous driving in winter months and also makes it possible for speakers to make their comments without unnecessary driving. The flexibility of this plan makes the most outstanding experts in all fields of medical science available to the entire profession of Indiana. To enable listeners to receive the full value from the telephone program there will soon be available to each physician a listing in a brochure carrying a picture of the speaker with a biographical sketch, an outline of his remarks, together with any reproductions of illustrations or charts he might normally use in his presentation. It is hoped that before long every county society within the state will be participating in the program.

KENTUCKY

Exhibit Wins Award.—A silver award from the American Roentgen Ray Society was given to an exhibit presented by the department of radiology at Veterans Administration Hospital and the University of Louisville School of Medicine. The exhibit on abdominal aortography showed new uses and possibilities in the technic. Dr. David Shapiro, chief radiologist at the hospital and assistant professor of radiology at the medical school, and Drs. Joseph C. Bell, Everett L. Pirkey, and Gerald M. Peterson, physicians on the faculty of the medical school, prepared the display.

MASSACHUSETTS

Tufts Alumni Lecture.—The annual medical alumni lecture will be given by Dr Frederick W. Maroney, Brooklyn College, New York, December 5 at 8 00 p m at the Tufts College Medical School, Boston on "Protect the Power House" This lecture is given annually by a distinguished alumnus of the medical school who is not on its faculty. Physicians, students and the faculty of Tufts College Medical School are invited

Clinical Anesthesiology.—A new program in clinical anesthesiology is being offered by Boston University School of Medicine under Dr Julia G Arrowood, professor of anesthesiology The course is designed for physicians practicing anesthesia in community hospitals Clinical facilities for the course have been made available at Massachusetts Memorial Hospitals Students are admitted as full time members of the resident staff for three months They are guided in preoperative and postoperative care of the patient as well as in administering anesthesia for clinical surgery They participate in clinics and conferences and may prepare for examinations of the American Board of Anesthesiology No fees are required Clinical facilities limit the enrolment to two students at a time

MICHIGAN

State Medical Election—The newly elected officers of the Michigan State Medical Society are Dr Clarence E Umphrey, Detroit president, Dr Otto O Beck, Birmingham, president-elect, Dr L Fernald Foster, Bay City, secretary, and Dr Andrew S Brunk, Detroit, treasurer

Public Health Conference—The thirtieth annual Michigan Public Health Conference will be held in the Pantlind Hotel and Civic Auditorium, Grand Rapids, November 29 December 1 to consider "New Weapons in the Battle Against Disease" and the role of public health personnel in civil defense and in time of disaster Physicians interested are cordially invited to attend the conference sessions Copies of the program may be obtained from the Michigan Department of Health, Lansing

MINNESOTA

Personal.—The Republic of Syria has sent to Dr Khalil G Wakim, Rochester, the medal of highest order of merit in appreciation of his services to the medical school of the National University of Syria in Damascus At the request of the Syrian government Dr Wakim was sent by the State Department in Washington to give lectures and help reorganize the medical school

Course in Obstetrics.—A continuation course in obstetrics for general physicians will be presented at the University of Minnesota, Minneapolis, December 15 and 16 Visiting faculty members for the course will include Dr Emil G Holmstrom, University of Utah School of Medicine Salt Lake City, Dr Curtis J Lund, Louisiana State University School of Medicine, New Orleans, and Dr Charles E McLennan, Stanford University School of Medicine, San Francisco

NEBRASKA

Carey Memorial Lecture.—The third annual Dr Eben J. Carey Memorial Lecture will be delivered November 27 at 8 00 p m in the Joslyn Memorial Art Museum Lecture Hall at Omaha by Dr C Rollins Hanlon, head of the department of surgery, St Louis University School of Medicine, on "Surgical Treatment of Cardiovascular Disease" This lecture is sponsored by Creighton University and the Phi Chi Medical Fraternity. Previously Dr Hanlon was associate professor of surgery at Johns Hopkins University Preceding the lecture Dr Hanlon will be entertained at a dinner at the Omaha Athletic Club by the Phi Chi Medical Fraternity Dr Carey, in whose memory these lectures are given, was at the time of his death dean of the Marquette University School of Medicine, Milwaukee For many years he had held a national office in the Phi Chi Medical Fraternity.

NEW YORK

Allergy Society Lecture.—Dr Carl E Arbesman, instructor in bacteriology and immunology, University of Buffalo School of Medicine, will speak on "Testing and Newer Therapy in Asthma and Hay Fever" at a meeting of the Allergy Society of Syracuse November 29 at 8 30 p m at University Hospital. The lecture has been arranged by the Medical Society of the State of New York in cooperation with the New York State Department of Health

Incidence of Cerebral Palsy—The number of persons handicapped by cerebral palsy annually is more than twice the number who are moderately or severely handicapped as a result of poliomyelitis, according to Dr I Jay Brightman, Albany, assistant commissioner for medical services of the New York State Department of Health He told the meeting of the New York State Association for Crippled Children that cerebral palsy occurs in about six patients in every 1,000 births, which in New York means 1,500 new cases per year Of these, 100 have minor involvement and 200 die early in life Thus the total of cerebral palsied added to the population is 1,200 or more It was reported that New York City will open two classes for cerebral palsied in Public School 85, the Bronx, and plans are under way for a similar unit on Staten Island

Academy Programs.—The Rochester Academy of Medicine has arranged the following programs for its Tuesday evening (8 30) monthly meetings

Dec 5, D Gordon Murray, Toronto, Canada, Surgery of Congenital Heart Disease
Jan 9 Joe W Howland Rochester, N Y, moderator, Symposium on Medical Problems in Atomic Energy
Feb 6, Hugh McCulloch, Chicago, Recent Advances in Rheumatic Fever
March 6 Philip S Hench Rochester Minn, Uses of ACTH
April 3, Edith H Quimby, Sc D, New York, Clinical Uses of Radioactive Isotopes

New York City

Panel on Pulmonary Tuberculosis.—The Tuberculosis Sanatorium Conference of Metropolitan New York will hold its clinical session on chronic pulmonary disease November 29 at 8 15 p m in the Cornell University Medical College Amphitheatre There will be a panel discussion on the "Correlation of Pathological, Clinical and Roentgenologic Findings in Patients with Pulmonary Tuberculosis Having Lung Resection"

Infant Mortality Committee Program.—The special committee on infant mortality of the Medical Society of the County of New York is continuing its monthly meetings open to all members of the medical and nursing profession and medical students Meetings are held in the Academy of Medicine Building the first Wednesday of each month at 8 30 p m At the first meeting, November 1, Dr Louis M Hellman, Baltimore, spoke on "Prevention of Prematurity" The next five lectures are

Dec 6, Priscilla White, Boston, Treatment of the Diabetic Mother and Her Newborn Child
Jan 3, Rustin McIntosh, New York The Pediatrician s Responsibility to the Newborn During the First Seven Days of Life
Feb 7, Bronson Crothers, Boston Neurological Problems of the Neonatal Period
March 7, R Gordon Douglas, New York and Charles A Weymuller, Brooklyn, Obstetrical Anesthesia and Analgesia as It Affects Neonatal Mortality
April 4 Edith L Potter, Chicago Atelectasis in the Newborn

Expand School Health Service.—School health services have been extended to five additional academic high schools as part of the city health department's work The department now gives school health services in 18 academic high schools with a school population of 56,000 and 31 vocational high schools with 45,000 pupils, in addition to the services which it has long given in the elementary parochial and public schools Services are given in 646 elementary public schools with a registration of 655,000 and 340 elementary parochial schools with 230,000 pupils During the 1949-1950 school year the department of health conducted 6,005 doctor sessions in the high schools and nurses spent 47,117 nursing hours at work in high schools The department also conducted 39,008 examinations of pupils in its general health supervision work, of that number 20,653 required further follow-up and study During the year 25,138 students were referred to school physicians or nurses because of either illness or accidental injury Private physicians examined and reported on 16,089 students, of these 2,535 required further follow-up study and care

OHIO

Dr. Derryberry Receives Prentiss Award—C Mayhew Derryberry, Ph D chief, division of public health education, U S Public Health Service, was awarded the Elisabeth Severance Prentiss National Award in Health Education at the tenth anniversary civic luncheon of the Cleveland Health Museum November 13 Given annually since 1944 by the Cleveland Health Museum, the award serves a dual purpose (1) to honor the memory of the museum's first foundation benefactress and (2) to encourage, through recognition, outstanding work in the field of health Dr Derryberry is one of the early proponents of new types of discussion technics Under his leadership the Health Education Section, U S Public Health Service, has become a strong administrative unit He was associate director of research, American Child Health Association, 1933-1935, research assistant, New York University, 1932-1936, and since 1936 has been with the Public Health Service He has been devoted to improvement of technics of health education Previous recipients of the award were Dr Harry E Kleinschmidt, retired master craftsman in health education mediums, 1949, Dr. Donald B Armstrong, Metropolitan Life Insurance Co, 1948, Dr. W. W. Bauer, American Medical Association, 1947; Mary P. Connolly, University of Michigan, 1946; Charles E. A. Winslow, Ph.D., Yale University, 1945, and Mary S. and Evart G. Routzahn, Russell Sage Foundation, 1944.

PENNSYLVANIA

Benjamin Rush Awards.—The Medical Society of the State of Pennsylvania presented these awards during its one hundredth annual session in October in Philadelphia. Leroy Mikels of Stroudsburg, Monroe County, was selected as "the outstanding lay individual who contributed most to the advancement of public health and to the improvement of health conditions in his respective community" during the past year. The Trexler Foundation of Allentown, Lehigh County, received the award as "the outstanding lay organization of Pennsylvania which did most to advance public health and to improve health conditions in the area it serves" during the past year. The winning counties' nominees were among 34 selected by the 22 component societies for the state awards.

Mr. Mikel financed, and guided through the depression years of the thirties, Monroe County's first bedside nursing service. During the past year the Red Cross Public Health Nursing Service, organized and financially helped by him, made 18,000 visits to Monroe County families. He organized in 1949 the voluntary public Blood Donor Program, which provides free blood and plasma to county residents. He was chairman of the American Red Cross Chapter in the Poconos from 1929 to 1947.

The Trexler Foundation, established in 1934, is a privately endowed organization that yearly allocates about $250,000 "for the support of community health organizations and programs, for recreational facilities that support health, and for youth agencies that teach and encourage healthful living and good citizenship" within Allentown and Lehigh County.

Philadelphia

Hospital Residents Banquet.—The sixty-fourth annual banquet of the Association of Ex-Resident and Resident Physicians of the Philadelphia General Hospital will be held December 5 at 7:00 p. m. at the Penn-Sheraton Hotel. Reservations may be had by writing to the secretary-treasurer: Dr. Robert C. McElroy, Room 514, 133 South Thirty-Sixth Street, Philadelphia 4.

Hospital Begins 40 Hour Week.—All employees, including 54 nurses and the century-old Woman's Medical College of Pennsylvania and its hospital, went on a 40 hour week beginning November 13. It is the first hospital in the city to adopt the standard industrial work week across the board. In some cases, particularly among nursing personnel, the new policy means a reduction in weekly work hours of as much as 17 per cent. More than 200 employees are affected. The step was taken, said a spokesman for the college and hospital, mainly to halt the siphoning of skilled employees into industry and business and thus to cut down expensive and crippling turnover in jobs.

GENERAL

Rockefeller Resigns as Institute Head.—John D. Rockefeller Jr. has resigned as president of the Board of Trustees of the Rockefeller Institute for Medical Research and was succeeded by his youngest son, David. Mr. Rockefeller will continue as a member of the board, with which he has been associated since its founding by his father in 1901. David Rockefeller is director of the Carnegie Endowment for International Peace, second vice president of the Chase National Bank and a trustee of the University of Chicago.

Society Election.—At the meeting of the International Union Against Tuberculosis, which was held in Copenhagen, Denmark, September 3-6, Prof. K. A. Jensen of Copenhagen assumed office as president; Dr. Manoel de Abreu of Rio de Janeiro was made president-elect; Prof. Etienne Bernard of Paris was reelected secretary-general, and M. Mirabaud of Paris was elected treasurer. The Twelfth Conference of the International Union Against Tuberculosis will be held in Rio de Janeiro in July or August 1952.

Plastic Surgeons Meeting in Mexico.—The American Society of Plastic and Reconstructive Surgery will hold its annual meeting at the Hotel Del Prado, México, D. F., November 26-29, under the presidency of Dr. Leon E. Sutton, Syracuse, N. Y. The society has been invited to attend the meetings of the Plastic Surgery Section of the IX Asamblea Nacional de Cirujanos, which has arranged preconvention activities. Dr. G. Sanvenero-Roselli, Milan, Italy, has been invited to speak. His subject will be "Congenital Malformations of the Face."

Harriman to Head Red Cross.—E. Roland Harriman, vice chairman of the board of governors, has been appointed by President Truman to succeed General George C. Marshall as president of the American Red Cross December 1. Mr. Harriman was chairman of a committee that planned the reorganization of the Red Cross and was manager of the organization's North Atlantic area during the war. He is also chairman of the Board of Directors of the Union Pacific Railroad. General Marshall was appointed president of the Red Cross on Sept. 22, 1949 and has continued to serve in that capacity since his recent appointment as defense secretary.

Markle Foundation Report.—The John and Mary R. Markle Foundation granted more than $800,000 to medical schools and other educational institutions in the year ending June 30, according to the annual report released in October. Of the grants, $500,000 went to medical colleges in the United States and Canada to help young faculty members become established in academic medicine, part of a five year program to build up teaching and research staffs of the schools. Twenty medical schools received $25,000 each for this purpose. Other grants included $110,000 to the Association of American Medical Colleges for research in medical education, $100,000 to the Social Science Research Council and a like amount to the American Council of Learned Societies.

Western Surgical Association.—This association will hold its annual meeting November 29 to December 2 at the Radisson Hotel in Minneapolis under the presidency of Dr. Warren H. Cole, Chicago. Invited speakers include:

Robert P. Meyer, Robert W. Ehrlich, C. Bruce Taylor and John M. Dorsey, Chicago, Experimental Bronchotracheal Anastomosis.
Thomas C. Douglass, W. Harrison Mehn, Benjamin F. Lounsbury, LaVern L. Swigart and Carlos Tanturi, Chicago, Attempts at Experimental Production of Portal Hypertension.
Donald E. Preshaw, Alfred M. Large and Arthur F. Johnson, Detroit, Effect of Portacaval Venous Shunt on Sulfobromophthalein Retention.
Charles S. Rife, Milwaukee, Benign Duodenal Colic Fistula.
Harold Laufman, Frederick W. Preston and Robert V. Bourdeau, Chicago, Efficacy of Hemostatic Agents in the Presence of Anticoagulant Therapy.
Walter R. Stager, Omaha, Bloodshed Conservation and Autotransfusion.

The annual dinner will be held December 1 after a cocktail hour at 6:30 p. m.

Radiological Society Meeting.—The Radiological Society of North America, Inc., will hold its annual meeting December 10-15 at the Palmer House, Chicago, under the presidency of Dr. Warren W. Furey, Chicago. Those presenting papers by invitation include:

Bronson S. Ray, Howard S. Dunbar and Charles T. Dotter, New York, Dural Sinus Venography.
Joseph Hanelin and William R. Eyler, Boston, Pulmonary Artery Thrombosis: Roentgen Manifestations.
Russell Wigh and Frederick R. Gilmore, Philadelphia, Solitary Pulmonary Necrosis: Comparison of Neoplastic and Inflammatory Conditions.
Janet E. Towne and Charles J. Smith, Chicago, Indications for Surgical Intervention in Carcinoma of the Cervix.
Dallas B. Phemister, Chicago, Multiple and Solitary Infarction of Bone in Adults.
Joseph B. Kirsner and Walter L. Palmer, Chicago, Reversibility in Ulcerative Colitis; Clinical and Roentgenologic Observations.
Joseph L. Morton, George W. Callendine, M.S., William G. Meyers, Ph.D., Columbus, Ohio, The Co^{60} Nylon Thread, a New Interstitial Radiation Therapy.
Herbert C. Allen Jr., Raymond L. Libby, Ph.D., Benedict Cassen, Ph.D., Los Angeles, The Scintillation Counter in Clinical Studies of Human Thyroid Physiology Using I^{131}.
George E. Moore and Richard B. Bridenbaugh, Minneapolis, Roentgen Demonstration of the Venous Circulation in the Liver Portal Venography.
Charles B. Huggins and E. V. Jensen, Ph.D., Chicago, Plasma Proteins in Cancer.

A series of refresher courses will be presented beginning with two on Sunday and seven courses daily from 8:30 to 10 a. m. Nonmembers will be charged a fee for the courses. Both scientific and commercial exhibits will be shown. The Carman Lecture will be given Tuesday evening at 8:00 p. m. by Dr. Furey on "The Development of Cardiovascular Radiology." The annual banquet will be held Thursday at 7 p. m.

Prevalence of Whooping Cough.—According to the U. S. Public Health Service, although the week ended November 11 is near the seasonal low week for whooping cough, more new cases of this disease were reported than any other of the common diseases of childhood. A total of 1,780 cases was reported as compared with 1,504 for the same week in 1949, and the 5-year median was 1,863 cases. The cumulative total since the seasonal low week, which falls between September 27 and October 3, is 9,374 as compared with 8,657 for 1949. The cumulative total for the "disease" year 1949-50 which ended September 30 was 118,731, which is more than double the total for the previous year, when 56,635 cases were reported. Estimated mortality rates based on a 10 per cent sample of deaths for the first 8 months of 1950 was 0.8 per 100,000 population, which was 60 per cent higher than that for a similar period in 1949.

AAAS Cleveland Meeting.—The annual meeting of the American Association for the Advancement of Science will be held in Cleveland December 26-30. All 17 of the association's sections and subsections and about 40 scientific societies will hold more than 200 sessions in the Public Auditorium and downtown hotels—Statler, Hollenden, Carter and Allerton. Programs of particular interest to those in the fields of medicine and experimental biology include:

- Section C—Chemistry. Two, of the 12 sessions, on steroid hormones, December 28, a. m. and p. m.; one on medicinal chemistry, evening of December 29.
- Subsection Nm—Medicine. Four session symposium on Biological Effects of Radiation, December 29 and 30, a. m. and p. m.
- Subsection Np—Pharmacy, jointly with the American Pharmaceutical Association, Scientific Session, December 28 and 29.

Information may be obtained from Dr. R. L. Taylor, Assistant Administrative Secretary, AAAS, 1515 Massachusetts Ave., N. W., Washington, D. C.

LATIN AMERICA

Postgraduate Short Course in Cuba.—This course will be presented December 4-6 at the Liceo de Camaguey under the auspices of the Colegio Médico de Camaguey and the Sociedad de Estudios Médicos y Quirurgicos de Camaguey. It will consist of medical lectures given in English and translated into Spanish, lantern slides and discussions. John Elliot, Sc.D., and Dr. Carlos A. P. Lamar, Miami, Fla.; Drs. Robert B. Greenblatt, Augusta, Ga.; E. Perry McCullagh, Cleveland, and Henry H. Turner, Oklahoma City, will be the lecturers. Their subjects will be endocrine problems in childhood, diagnosis and treatment; testicular dysfunction; ovarian dysfunction; blood transfusion; metabolism of carbohydrates; Selye's syndrome of alarm; shock; thyroid disorders; toxic hyperthyroidism treatment; cortical hyperadrenalism; Rh factor; cancer of the breast; hormonal treatment; syndrome of pale large ovaries; sexual maladjustment in married couples, diagnosis and treatment. Further information may be obtained from Colegio Médico de Camaguey, Camaguey, Cuba.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS

Alabama: Montgomery, June 26 28. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Colorado:* Denver, Jan. 3 5, 1951. Exec. Sec., Mrs. B. M. Hudgens, 831 Republic Bldg., Denver.

Delaware: Dover, Jan. 9 11. *Reciprocity.* Jan. 18, 1951. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

District of Columbia:* *Reciprocity.* Washington, Dec. 11. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Florida:* Jacksonville, Nov. 26-28. Sec., Dr. Homer Pearson, 701 Dupont Bldg., Miami.

Georgia: Atlanta, June. Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. John Y. Battenfield, Agana.

Hawaii: Honolulu, Jan. 8 11, 1951. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

Idaho: Boise, Jan. 8, 1951. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

Illinois: Chicago, Jan. 9 11. Superintendent of Registration, Mr. Charles F. Kervin, Capitol Bldg., Springfield.

Indiana: Indianapolis, June 20 22. Exec. Sec., Miss Ruth V. Kirk, 1138 K. of P. Bldg., Indianapolis 4.

Iowa: *Written.* Des Moines, Dec. 4 6. Acting Director, Dr. Walter L. Bierring, Division of Examination and Licensure, State Department of Health, 1027 Des Moines St., Des Moines.

Kansas: Topeka, Dec. 13 14. Sec., Dr. O. W. Davidson, 772 New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, Dec. 11-13. Sec., Dr. Bruce Underwood, 620 South Third St., Louisville.

Louisiana: New Orleans, Dec. 7-9. Sec., Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maryland: Baltimore, Dec. 12 15. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1. *Homeopathic.* Baltimore, Dec. 12 13. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

Massachusetts: Boston, Jan. 23 26, 1951. Sec., Dr. Geo. R. Schadt, 37 State House, Boston.

Minnesota:* Minneapolis, Jan. 16 18. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: Jackson, December. Asst. Sect., Dr. R. N. Whitfield, Jackson 113.

Montana: Helena, April 2 4. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

Nebraska:* June 1951. Director, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln.

New Hampshire: *Examination.* Concord, March 14-15. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New York: *Examination.* Albany, Buffalo, Syracuse and New York City, Jan. 30 Feb. 2. Sec., Dr. Jacob L. Lochner, 23 S. Pearl St., Albany.

North Carolina: *Reciprocity.* Winston Salem, Jan. 15. Sec., Dr. Joseph J. Combs, 419 Professional Bldg., Raleigh.

North Dakota: Grand Forks, Jan. 3 6. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: Columbus, December. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma:* *Examination.* Oklahoma City, June 6 7. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Examination.* Portland, January 4-6. Sec., Mr. Howard I. Bobbit, 608 Failing Bldg., Portland 4.

Pennsylvania: Philadelphia, January 1951. Acting Secretary, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: Examination. Santurce, March 6. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

Rhode Island:* Providence, Jan. 4 5. Chief, Division of Profesional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Dakota:* Jan. 15-16. Sioux Falls, South Dakota. Sec., Dr. C. E. Sherwood, 109 Center St., West, Madison.

Tennessee:* *Examination.* Memphis, Dec. 21-22. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis 3.

Utah: Salt Lake City, July 1951. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Vermont: Burlington, February 1951. Sec., Dr. F. J. Lawliss, Richford.

Virginia: Richmond, Nov. 30, Dec. 1-2. Sec., Dr. K. D. Graves, 631 First St., S. W., Roanoke.

Washington:* *Seattle, January 1951.* Sec., Mr. *Edward C. Dohm,* Department of Licenses, Olympia.

West Virginia: Charleston, Jan. 8 10. Sec., Dr. N. H. Dyer, State Capitol, Charleston 5.

Wisconsin:* River Falls, Jan. 9-11, 1951. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

Wyoming: *Examination.* Cheyenne, Feb. 5. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: *Examination.* Tucson, Dec. 19. Sec., Mr. Francis A. Roy, Room 423, University of Arizona, Tucson.

Colorado: *Examination.* Denver, Dec. 6 7. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 3.

Connecticut: *Examination.* Feb. 10. Executive Asst., State Board of Healing Arts, Mr. M. G. Reynolds, 110 Whitney Ave., New Haven 10.

Michigan: *Examination.* Detroit and Ann Arbor, Jan. 12 13. Sec., Miss Eloise LeBeau, 101 No. Walnut St., Lansing 15.

Minnesota: *Examination.* Minneapolis, Jan. 2 3. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

Nebraska: *Examination.* Omaha, Jan. 9 10. Dir., Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln 9.

New Mexico: *Examination.* Santa Fe, Dec. 10. Sec., Mrs. Marguerite Cantrell, P. O. Box 1522, Santa Fe.

Oklahoma: *Examination.* Oklahoma City, March 27. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, Dec. 2. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

South Dakota: *Vermillion, Dec. 1-2.* Sec., *Dr.* Gregg M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination.* Memphis, Dec. 27-28. Sec., Dr. O. W. Hyman, 874 Union Avenue, Memphis.

Washington: Seattle, January 1951. Sec., Mr. Edward D. Dohm, Department of Licenses, Olympia.

Wisconsin: *Examination.* Milwaukee, Dec. 2. Madison, April 7. Sec., Mr. W. H. Barber, Scott and Watson Sts., Ripon.

---

* Basic Science Certificate required

Coming Medical Meetings

American Medical Association, Clinical Session, Cleveland, Dec. 5-8. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 2-7. Dr. John E. Rauschkolb, P. O. Box 6565, Cleveland, Secretary.

American Association of Medical Clinics, Hotel Cleveland, Cleveland, Dec. 4. Dr. Arthur H. Griep, Welborn Clinic, Evansville, Ind., Secretary.

American Psychoanalytic Association, Waldorf-Astoria Hotel, New York, Dec. 7-10. Dr. LeRoy M. A. Maeder, 1910 Rittenhouse Square, Philadelphia 3, Secretary.

American Society of Plastic and Reconstructive Surgery, Mexico City, Mexico, Nov. 27-29. Dr. Clarence R. Straatsma, 66 E. 79th St., New York City, Secretary.

Puerto Rico, Medical Association of, Santurce, Dec. 13-17. Dr. Victor J. Montilla, P. O. Box 3866, Santurce 29, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 10 15. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Southern Surgical Association, Hollywood Beach Hotel, Hollywood, Fla., Dec. 5 7. Dr. John C. Burch, 2112 West End Ave., Nashville 5, Tenn., Secretary.

Western Surgical Association, Minneapolis, Nov. 30 Dec. 2. Dr. Michael Mason, 154 E. Erie St., Chicago, Secretary.

DEATHS

Kully, Herman Edward ⊕ Omaha, born in Omaha Nov 21 1903, Creighton University School of Medicine Omaha, 1929, assistant professor of otolaryngology and had been acting director of the department at his alma mater, specialist certified by the American Board of Otolaryngology, fellow of the American College of Surgeons, member of the American Academy of Ophthalmology and Otolaryngology, affiliated with Creighton Memorial St Joseph's Hospital, Children's Memorial Hospital Doctors Hospital, Lutheran Hospital and Douglas County Hospital, otolaryngological consultant for the Union Pacific Employees Hospital Association, died September 19, aged 46, of coronary thrombosis

Norris, Samuel Royall, Jacksonville, Fla , born in Raleigh, N C, Feb 7, 1897, University of Pennsylvania School of Medicine, Philadelphia, 1922, specialist certified by the American Board of Obstetrics and Gynecology, member of the American Medical Association, member and past president of the South Atlantic Association of Obstetricians and Gynecologists, past president of Duval County Medical Society, fellow of the American College of Surgeons, affiliated with St Luke's, Riverside and Duval County hospitals, served during World War I, died September 21, aged 53, of lymphosarcoma

Dalton, Richard Andrew Jr , Lafayette, La , Louisiana State University School of Medicine, New Orleans 1944 served as assistant surgeon in the U S Public Health Service Reserve and as a resident in internal medicine at the U S Marine Hospital in Staten Island N Y , drowned while fishing at Grand Isle August 5, aged 30

Eudy, William Thomas, Eminence, Mo , University of Louisville (Ky) Medical Department 1909 member of the American Medical Association secretary of Carter Shannon Counties Medical Society , served overseas during World War I , died in Poplar Bluff (Mo) Hospital September 10 aged 75, of coronary heart disease

Goodrich, Edson Everett, Rome, N Y , Baltimore University School of Medicine, 1900, served on the Mexican Border and overseas during World War I for many years a physician to governmental branches in France, died September 9, aged 73

Guntzer, Germaine Agatha, Honolulu Hawaii Cornell University Medical College, New York, 1931, died September 2, aged 50

Johnson, Nimrod August, Santa Monica Calif , University of Minnesota College of Medicine and Surgery Minneapolis, 1905, member of the Minnesota State Medical Association fellow of the American College of Surgeons, formerly practiced in Minneapolis where he was affiliated with Deaconess and St Mary's hospitals died in Minneapolis September 6, aged 69, of coronary thrombosis

Lamb, Charles W., ⊕ Forest Park Ill , Jenner Medical College, Chicago, 1910, died September 11, aged 71, of carcinoma of the tongue

Miller, Albert Winters, Indianapolis, University of Indianapolis Medical Department, 1903, member of the American Medical Association, served as school physician, affiliated with St Francis Hospital in Beech Grove, died September 12, aged 71, of cerebral hemorrhage

Neergaard, Fred Adolph, Harriman Tenn , Maryland Medical College, Baltimore, 1908 member of the American Medical Association, past president of the Roane County Medical Society , formerly vice president of the Tennessee State Medical Association, served overseas during World War I, affiliated with Harriman Hospital, died in Kingston September 15, aged 67, of acute coronary occlusion

Nelson, Francis Medard, Oakland, Calif , Flint Medical College of New Orleans University, New Orleans, 1904, a medical examiner during World War I, Congressional medalist as examiner for Selective Service System during World War II, died September 6 aged 71, of cerebral accident

Oman, Elmer Samuel, Columbus Ohio, Ohio Medical University, Columbus, 1898, died September 13, aged 82, of cerebral hemorrhage

Purnell, James D., Myrtle, Miss , University of Tennessee Medical Department, Nashville, 1892, member of the American Medical Association, died in New Albany September 13, aged 82

Ravdin, Marcus ⊕ Evansville, Ind , Memphis, (Tenn) Hospital Medical College, 1900, an Associate Fellow of the American Medical Association, member of the American Academy of Ophthalmology and Otolaryngology, fellow of the American College of Surgeons, specialist certified by the American Board of Ophthalmology and American Board of Otolaryngology, consulting oculist Louisville and Nashville Railroad, on the staffs of St Mary's Hospital and Deaconess Hospital, where he died September 12, aged 84, of heart disease

Richey, Clifford Otto, Evansville Ind , Indiana University School of Medicine, Indianapolis, 1922 member of the American Medical Association, served during World Wars I and II, died in the Veterans Administration Hospital, Indianapolis, September 8, aged 51, of hypertensive cardiovascular disease.

Solley, Fred Palmer, New York, College of Physicians and Surgeons, medical department of Columbia College, New York, 1892, formerly on the faculty of his alma mater, past vice president of the New York Academy of Medicine, member of the American Medical Association, served on the staffs of the Knickerbocker Hospital Presbyterian Hospital and St Luke's Hospital, where he died September 7, aged 83, of aplastic anemia

Spackman, Ross Hugh, New York University of Toronto Faculty of Medicine, Toronto, Ont , Canada 1928, member of the American Medical Association, served during World War II, died September 6, aged 48

Spears, Tunis R , Washburn, Wis , Rush Medical College, Chicago, 1889, health officer of Washburn for many years physician for the Omaha Railway, died September 7, aged 87, of heart disease

Speed, George William, Mullens, W Va , University of Cincinnati College of Medicine 1935, member of the American Medical Association, served during World War II, affiliated with Mullens General Hospital formerly on the staff of Madison (W Va) General Hospital, died in Raleigh General Hospital, Beckley, September 10, aged 42, of acute pancreatitis

Squires, Frederick Eugene, Livonia N Y , University of Buffalo School of Medicine 1896, member of the American Medical Association, for many years town health officer died in Strong Memorial Hospital, Rochester September 13 aged 85

Stein, Elias, Flushing, N Y Long Island College of Medicine, Brooklyn 1933, served during World War II, died October 4, aged 40, of heart disease

Sterrett, William John, Pittsburgh, Western Pennsylvania Medical College, Pittsburgh 1901, member of the American Medical Association, for many years trustee of Geneva College, veteran of the Spanish American War served on the Mexican border and during World War I affiliated with Allegheny General Hospital, where he died September 5, aged 76

Swayze, Henry Yandell, Center Point, Texas, Medical Department of Tulane University of Louisiana New Orleans, 1893 fellow of the American College of Chest Physicians, served as superintendent of the Kerrville State Sanatorium in Kerrville, died August 30, aged 80 of heart failure

Talbot, John ⊕ Portland, Ore , College of Physicians and Surgeons of San Francisco, 1916 died August 31, aged 73

Taub, Israel Zangwill, New York, Northwestern University Medical School, Chicago, 1928, died in the Veterans Administration Hospital September 3, aged 57, of uremia

Terry, Marcus Claude, Palo Alto, Calif , Keokuk (Ia) Medical College, 1897, Rush Medical College, Chicago, 1899, served during World War I, served on the staffs of various Veterans Administration hospitals, formerly clinical instructor of immunology at Leland Stanford Junior University School of Medicine, died in Salem, Ore, September 9, aged 79, of acute coronary occlusion

Tinsley, Jack Byrd, Bethlehem Pa , Jefferson Medical College of Philadelphia, 1949, served during World War II, medical resident physician at St Luke's Hospital, where he had been an intern and where he died September 6 aged 28, of lymphatism, blood transfusion reaction and secondary anemia

Turner, Henry William Biddle ⊕ Lieutenant Commander, U S Navy, retired, Miami, Fla , University of Pennsylvania Department of Medicine, Philadelphia, 1906, entered the Medical Corps of the U S Navy as a lieutenant (jg) on July 30, 1908, placed on the retired list Nov 1, 1930, after 22 years' naval service, died near Beaufort, S C, August 3, aged 65, of injuries received in an automobile accident

Utter, Henry Abraham, Harrisburg, Ill , University of Arkansas School of Medicine, Little Rock 1936, died August 19, aged 40, of heart disease

---

⊕ Indicates Fellow of the American Medical Association

FOREIGN LETTERS

ITALY

(From a Regular Correspondent)

FLORENCE, Sept. 10, 1950.

Chronic Polyarthritis

Professor Rietti reported in a session of the Academy of Sciences of Ferrara his observations on 15 patients with primary chronic polyarthritis treated by the method of Lewin and Wassen. The method consists in the simultaneous injection of 5 mg. of desoxycorticosterone acetate intramuscularly and 1 Gm. of ascorbic acid intravenously. Results were favorable only in some cases. The speaker reported that this method is in conflict with experimental researches by Selye, but, from the theoretical and practical point of view, he believes that this therapeutic method should be tried on a large scale. It seems, in fact, that the desoxycorticosterone assumes properties similar to 17-hydroxy-11-dehydrocorticosterone (cortisone), a drug which at present is not at the disposal of the majority of the patients because of its high cost. In the discussion that followed, Professor Dogliotti confirmed, on the basis of personal experience, the good results obtainable with Lewin and Wassen's therapy in primary chronic arthritis. He expressed the opinion that success may be closely linked to a favorable quantitative relation between the doses of the two injected substances. Professor Aloisi advanced the hypothesis that the ascorbic acid acts on the desoxycorticosterone acetate by stimulating oxydation.

Electrophoresis and Chromatography in the Study of Protein

At the Superior Institute of Public Health, the Nobel prize winner Tiselius, professor of biochemistry of the University of Upsala, discussed electrophoresis and chromatography in the study of protein chemistry. He pointed out that, in the study of proteins and other substances of high molecular weight, the methods of fractioning and separation are of particular importance because they furnish fundamental indications which are necessary for chemical identification. Among the methods which have proved useful for this purpose is electrophoresis, which is based on the difference of migration of particles of substances under the influence of an electric current Progress in this field of research was recently made with special apparatus for the continuous separation of large amounts of proteins and with the use of some ultramicromethods for the analysis of a drop of serum. Another method fairly useful for studying proteins is the analysis by adsorption or chromatography, developed by Tswett in 1906 and improved by the speaker and co-workers in 1941. The solution of the protein to be studied passes through a column of suitable adsorbent. The presence of various components in the solution produces unequal concentrations, which can be observed in the filtrate as distinct zones by the use of optical methods. The diagrams thus obtained permit observation of the separation of amino acids, peptides and fatty acids, facilitating the determination of their nature and of their concentration. These studies by the speaker and his school have widened the knowledge on the mechanism of chromatography and have allowed the analysis of complex mixtures of peptides, like those which may be obtained by enzymatic digestion of various proteins.

Medicosurgical Society

The Medicosurgical Society of Pisa convened under the chairmanship of Prof. C. Cassano. Drs. Tronchetti and Torsoli reported on their study of the influence of pituitary adrenocorticotropic hormone (ACTH) on respiration and sugar metabolism in the normal person and in hyperthyroid patients. The following observations have been made after administration of the hormone: (1) a tendency to hyperglycemia on fasting, with increase of urea in the urine, (2) a low glycemic curve after oral administration of dextrose and epinephrine, (3) decreasing basal metabolic rates in hyperthyroid patients with a low respiratory rate and (4) an increase of urinary oxygenated steroids. The interpretation of these results is still dubious. Dr. Di Molfetta discussed the pathogenesis of congenital lymphangioma cysticum of the neck. From observations in two newborn infants, operated on successfully, the speaker maintains it is possible to reach a more precise understanding of the disease by taking into consideration the development of the lymphatic system. He is of the opinion that the disease starts and develops in the mesenchyma, from which the cervical lymph node develops, and that it is characterized by a modification of the formation procedure and of the evolution of this vessel-forming center.

Drs. Luciani and Merlini discussed their experience in the treatment of brucellosis melitensis with stock vaccine and autovaccine, streptomycin combined with sulfadiazine, aureomycin and chloramphenicol. They stressed in particular their results with chloramphenicol therapy. With a dose of 3 Gm. per day, they obtained defervescence in an average of five days, without toxic phenomena of importance or signs of drug intolerance. The tolerance of chloramphenicol proved to be better than that of aureomycin, while the therapeutic results were almost the same. The speakers systematically combined chloramphenicol treatment with vaccination, stressing that this can be done with safety after defervescence had been obtained with chloramphenicol. This combination of chloramphenicol and vaccine proved to be the method of choice.

Drs. Conti and Andreani reported the results of their study on lipemic variations produced by prolonged treatment with pituitary adrenocorticotropic hormone. They observed that intramuscular injection of large doses of pituitary adrenocorticotropic hormone is followed by hyperlipemic or hypolipemic reactions. The total lipids and cholesterol are constantly increased in the patients with hypopituitarism, while rapid diminution of lipemic values occurs in hyperpituitarism. In both instances a constant diminution of total lipids and cholesterol was observed after prolonged treatment with pituitary adrenocorticotropic hormone. The speakers rather exclude the possibility that the lipid and cholesterol variations induced by corticotropic stimuli should be attributed only to the metabolic modifications of the adrenal cortex, which had been stimulated to a more active production of the steroid hormones. They admit that such variations represent manifestations of the general lipid metabolism, induced and sustained by the reactivated function of the adrenal cortex. The speakers proposed the hypothesis that in the state of depressed prehypophysial function the adrenal cortex activates, but only transitorily, the mobilization of fat deposits, with limitation to the first phase of functional recovery. In every case lipopexia is stimulated by the adrenal cortex. The fat-regulating property of the adrenal cortex is also influenced by hepatic function. The patients with chronic liver disease did not manifest significant lipid variations after administration of pituitary adrenocortcotropic hormone.

year from the small sums collected at bazaars, lotteries and small festive meetings in out-of-the-way localities. In 1928, a postmaster in a small post office began to collect used postal stamps and to send the sums from their sale to the national association. Others followed his example, and now the collection and sale of such stamps has developed into a veritable industry.

During these past fruitful 40 years annual deaths from tuberculosis have declined from more than 6,000 to less than 2,000. Norway has now more than 100 tuberculosis homes with over 3,000 beds and 20 sanatoriums and coast hospitals with some 2,000 beds, with consequent negligible waiting lists. The association was subjected to unexpected stress during the German occupation of Norway. BCG vaccination, to which the association was already pledged, was to be side-tracked, according to the head of the Norwegian Public Health Service and the association was to pass over to other bodies the system of tuberculosis nursing which had already proved so effective in its hands. The board of management of the association, however, adopted an attitude of passive resistance, with the result that the continuity of its policy was assured when, in 1945, the Quisling government of Norway collapsed with the expulsion of the Germans.

The layman has much influence in the councils of the association. It is the educated layman who has contributed so largely to the education of the public. This educational factor made itself felt when, in 1947, legislation was introduced for compulsory vaccination with BCG. It received such support from popular health education that anticipated opposition did not materialize. In county after county, persons between the ages of 15 and 40 are undergoing BCG vaccination. In 1949, in the County of Østfold alone, 92 per cent of the population at the school-leaving age submitted voluntarily to this measure. It may be pointed out that the BCG legislation of 1947 was coupled with provision for the compulsory mass radiography of the community.

Clinical Studies of Malignant Hepatitis

At Medical Department B of the Rikshospital in Oslo there was an instructive collection of cases of malignant hepatitis during the years Norway was occupied by the Germans. Prof. H. A. Salvesen, who is in charge of this department, and Dr. Ola Lödöen have published an account of these cases (*Acta Med. Scandinav.* 137: 305, 1950). Their material consists of 23 cases in which the hepatitis lasted more than three months or ended fatally with the picture of acute or subacute yellow atrophy of the liver. All but three of these patients were women, and all the cases in females occurred between 1941 and 1946. During the same period there were only 14 patients (7 men and 7 women) with benign hepatitis observed in the same hospital department. Evidently patients with hepatitis in Oslo are not as a rule admitted to the hospital unless the disease is of long duration or has shown alarming symptoms.

An interesting question raised by Professor Salvesen and Dr. Lödöen concerns the etiology of malignant hepatitis. Is it, as argued by Alsted, distinct from the ordinary sporadic and epidemic hepatitis seen in peacetime, or are these two conditions merely variations in degree of one and the same disease? Salvesen and Lödöen admit the impossibility of final conclusions as long as the causative agent is unknown, ". . . but we are inclined to believe in the unity of the malignant and the usual peacetime hepatitis, chiefly because all the different types of development observed in the malignant form also have been seen in benign hepatitis, although by different observers. It is the mass action of many cases with these uncommon types of course of the disease which impresses the clinician, so that he thinks he observes a new disease."

COLOMBIA

(From a Regular Correspondent)

Bogotá, Aug. 18, 1950.

Antituberculosis Campaign

Dr. J. P. Leyva, head of the tuberculosis department of the Ministry of Hygiene, recently gave the following statistical data on the antituberculosis campaign in Colombia. There are 25 clinics in the country for the diagnosis and treatment of tuberculosis. In these clinics 67,312 intravenous injections, 134,579 intramuscular injections, 3,278 initial pneumothorax treatments and 38,261 insufflations were administered during 1949, in which year 385,120 persons had roentgen examinations of the chest. The results were positive in 4,923 persons, suspicious in 8,688 and negative in the rest. There are four tuberculosis sanitariums and a number of tuberculosis wards in general hospitals, where 7,851 bed patients were cared for and 1,323 surgical operations done in 1949. The mortality of these hospitalized patients was 1,385. In the national campaign 629,873 persons were handled during the year and the clinical laboratories and the vaccination centers made 16,540 examinations of sputum and 85,590 tuberculin tests. The fact that 150,000 tuberculous patients have not had medical aid is due to the magnitude of the problem rather than to deficiencies of the campaign.

Mosquitoes of Eastern Colombia

Dr. Julian de Zulueta of the Roberto Franco Institute of Tropical Diseases in Villavicencio has published (*Am. J. Trop. Med.* 30:325 [March] 1950) a study of the habits of mosquitoes in the savannas of Eastern Colombia. The observations were made during the rainy season, in June, July and November, 1948, and June 1949. He estimated that there were about 3,000,000 mosquitoes per square kilometer. The Anopheles, about 300,000 per square kilometer, included A. peryassui, A. pessoai, A. punctimacula and A. parvus. The commonest culicine species were Culex chrysotonum, Culex (melanoconion) sp. and Psorophora confinnis. The maximum distance between the site of capture and a breeding place was 1,800 meters. The mosquito count in the vicinity of the breeding place was approximately the same as the count 1 kilometer away. Biting activity of mosquitoes started shortly after sunset, continued during the night and increased slightly before sunrise; there was practically no biting activity during the day. Swarms of culicinae were seen over the savannas as early as 5 p. m., but mating of Anopheles was observed on only two occasions, at 7 p. m.; swarming males captured proved to be A. peryassui.

Personals

A new board of directors of the National Academy of Medicine of Colombia has been appointed for the period 1950-1952: Dr. Jose Vicente Huertas, president; Prof. Edmundo Rico, vice president; Dr. Augusto Gast Galvis, secretary, and Prof. Guillermo Uribe Cualla, treasurer.

Dr. Alfredo Luque B., professor of therapeutics and medicine, recently was appointed dean of the school of medicine of the National University of Colombia.

Dr. Alonso Carvajal Peralta, professor of the urological clinic of the school of medicine of the National University of Colombia, was recently appointed minister of hygiene.

The "Cruz Camilo Torres" was awarded by the national government to Drs. Emilo Robledo Correa and Miguel María Calle, both of Antioquia, on their completion of 50 years of professional work. These men are the first to receive this award, which was established Oct. 5, 1948.

Dr. Ernest Carrol Faust, professor of tropical diseases and hygiene, Tulane University of Louisiana, New Orleans, U. S. A., visited the school of medicine of the National University July 4-6. He delivered lectures to the school of medicine and to the Academy of Medicine of Colombia, on malaria in America and on amebiasis.

BELGIUM

(From a Regular Correspondent)

Liège, Oct. 10, 1950.

Unification of Aviation Health Measures

Belgium, France, Luxembourg, the Netherlands and the United Kingdom have agreed that, beginning Feb. 1, 1950, they will be regarded as a single territory in matters of sanitary control of air transportation. From the administrative point of view, this territory will be known among the countries of the Treaty of Brussels as the "free health zone." This new system, which is the result of efforts of the Public Health Committee of the Organization of the Treaty of Brussels, makes possible the simplification of control measures, without reducing their effectiveness. The principal points of the regulation are as follows: 1. Any airplane departing from any point of the "free health zone" will, under normal conditions, be exempted from health control measures on arrival at another point in the zone. This implies the elimination of the health declaration issued by the air command for the airplane, as well as the individual declarations on the origin and health of the passengers. 2. The health control of the crew and passengers of a plane bound for the "free health zone," coming from an airport located outside this zone, will be performed only at the first stop inside the zone. The "free health zone" can, in case of an epidemic, be restricted by the ministers of public health.

Seasonal Etiology of Retinal Detachment

Dr. Van Lint has just published in *Bruxelles-Medical* an interesting study on the influence of the seasons on detachment of the retina. He asks, "Why does the spring and summer favor detachment of the retina?" All the statistics collected so far, show that there is a seasonal factor. Three causes may contribute to it in the spring: 1. Light. 2. Movement. The active or passive movements of the whole body are frequently the cause of the detachment. The arrival of spring brings an increase of walking, running, jumping, outside activities and sports. The author cites Jeandelize, who reports detachment of the retina immediately following an energetic muscular exertion, and Vogt, who observed detachment in a myopic patient after a trip by motor car. It is also well known that movement is harmful after operation for detachment. 3. A secondary cause which deserves consideration is springtime asthenia, which appears after overwork during the winter. The author suggests, therefore, that one diminish the glaring brightness of spring with adequate glasses. Myopic persons should be advised on the health aspects of movement; they should avoid jumping, long trips, falls and, in general, any effort which causes congestion in the head.

Criminality in Belgium

At a session of the Society of Neurology and Psychiatry, Leroy, after presenting a historic survey of the economic and social development of Belgium, cites the great measures for social protection which were started under the reign of Maria Theresa (the separate system of prison discipline at Ghent). He then reported the results of the law of social protection of 1930. Criminality has diminished more than 50 per cent. Contrary to the ideas of Lombroso, the number of repeated offenses decreased simultaneously with the number of first offenses, although more slowly. This constant improvement, in spite of social depressions, is due to the rising standard of living of the masses and to the improvement in education. At present, 78 per cent of the delinquents are illiterate or poorly educated and, according to the author's experience, are mentally weak or unbalanced. Social improvement is best effected by more widespread education and better mental hygiene.

Belgian Society of Endocrinology

This society has just been organized. The number of meetings will be limited to three or four a year. The reports of the Belgian Society of Endocrinology will be published in collaboration with the French society.

NORWAY

(From a Regular Correspondent)

Oslo, Oct. 7, 1950.

Heart Disease Discovered by Mass Radiography

In the Scandinavian countries, mass radiography of whole sections of the community has hitherto usually been undertaken in a search for tuberculosis. Frequently hitherto overlooked heart disease is discovered. In Stavanger, the fourth largest town in Norway, Johan Riis has lately shown that among 36,000 persons over the age of 14 examined in this way, there were as many as 290 with signs of heart disease. On closer examination of 286 of these persons, 268 were found to have heart disease; this diagnosis could not be confirmed in the remaining 18. Among the 290 were 179 over the age of 60. There were 88 with valvular disease of the heart, usually rheumatic, and 163 with high blood pressure as well as heart lesions. About one third of all these persons (92) were already aware of their heart disease. About one fifth were in need of immediate treatment.

In Stockholm, Westman found radiologic signs of heart disease in 328 persons under the age of 60 out of a total of 63,877 persons undergoing mass radiography. Among these 328 persons were 111 with acquired valvular disease of the heart, usually rheumatic. There were 59 with high blood pressure combined with cardiac lesions and 53 with congenital heart disease. About one third were unaware of their heart disease, though most of them had experienced symptoms suggestive of it. In many cases there had indeed been pronounced symptoms, but a physician had not been consulted for fear he would confirm suspicions.

Commenting on this state of affairs, Dr. O. Jervell of Oslo draws attention to confirmatory observations elsewhere, including the United States. He quotes White as estimating that about 2 per cent of the inhabitants of Northern United States suffer from heart disease. With mass radiography revealing heart disease in about 1 per cent of all the persons examined, it would seem that about every other case of heart disease would be incidentally discovered. Dr. Jervell is not quite sure this is an important advance, for he does not have blind confidence in wholesale radiologic diagnoses; even the electrocardiographic signs of heart disease are not, in his opinion, always a true index of real heart disease. "Whatever the methods we employ for the mass examination of healthy persons, we must not attach too much importance to findings differing from the normal."

National Antituberculosis Association

This summer the Norwegian National Antituberculosis Association celebrated its fortieth anniversary in Bergen. The association's president, Dr. Harold Bjelke, took this opportunity to trace its history and review its achievements. The Norwegian Medical Association was originally responsible for the foundation of this national organization in the fight against tuberculosis, and at first its direction was almost entirely in the hands of doctors. Bit by bit laymen have come to take a more active part, and at present the policy of the association reflects the layman's as well as the doctor's point of view. Since its modest beginning in 1910, the association has learned to handle seven-figure budgets which would have staggered its founders. Apart from the millions received as a voluntary organization, there are the substantial contributions made to the association by the state. Yet the greatest source of revenue has come year by year from the small sums collected at bazaars, lotteries and small festive meetings in out-of-the-way localities. In 1928, a postmaster in a small post office began to collect used postal stamps and to send the sums from their sale to the national association. Others followed his example, and now the collection and sale of such stamps has developed into a veritable industry.

During these past fruitful 40 years annual deaths from tuberculosis have declined from more than 6,000 to less than 2,000. Norway has now more than 100 tuberculosis homes with over 3,000 beds and 20 sanatoriums and coast hospitals with some 2,000 beds, with consequent negligible waiting lists. The association was subjected to unexpected stress during the German occupation of Norway. BCG vaccination, to which the association was already pledged, was to be side-tracked, according to the head of the Norwegian Public Health Service and the association was to pass over to other bodies the system of tuberculosis nursing which had already proved so effective in its hands. The board of management of the association, however, adopted an attitude of passive resistance, with the result that the continuity of its policy was assured when, in 1945, the Quisling government of Norway collapsed with the expulsion of the Germans.

The layman has much influence in the councils of the association. It is the educated layman who has contributed so largely to the education of the public. This educational factor made itself felt when, in 1947, legislation was introduced for compulsory vaccination with BCG. It received such support from popular health education that anticipated opposition did not materialize. In county after county, persons between the ages of 15 and 40 are undergoing BCG vaccination. In 1949, in the County of Østfold alone, 92 per cent of the population at the school-leaving age submitted voluntarily to this measure. It may be pointed out that the BCG legislation of 1947 was coupled with provision for the compulsory mass radiography of the community.

Clinical Studies of Malignant Hepatitis

At Medical Department B of the Rikshospital in Oslo there was an instructive collection of cases of malignant hepatitis during the years Norway was occupied by the Germans. Prof. H. A. Salvesen, who is in charge of this department, and Dr. Ola Lödöen have published an account of these cases (*Acta Med. Scandinav.* 137: 305, 1950). Their material consists of 23 cases in which the hepatitis lasted more than three months or ended fatally with the picture of acute or subacute yellow atrophy of the liver. All but three of these patients were women, and all the cases in females occurred between 1941 and 1946. During the same period there were only 14 patients (7 men and 7 women) with benign hepatitis observed in the same hospital department. Evidently patients with hepatitis in Oslo are not as a rule admitted to the hospital unless the disease is of long duration or has shown alarming symptoms.

An interesting question raised by Professor Salvesen and Dr. Lödöen concerns the etiology of malignant hepatitis. Is it, as argued by Alsted, distinct from the ordinary sporadic and epidemic hepatitis seen in peacetime, or are these two conditions merely variations in degree of one and the same disease? Salvesen and Lödöen admit the impossibility of final conclusions as long as the causative agent is unknown, ". . . but we are inclined to believe in the unity of the malignant and the usual peacetime hepatitis, chiefly because all the different types of development observed in the malignant form also have been seen in benign hepatitis, although by different observers. It is the mass action of many cases with these uncommon types of course of the disease which impresses the clinician, so that he thinks he observes a new disease."

COLOMBIA

(From a Regular Correspondent)

BOGOTÁ, Aug. 18, 1950.

Antituberculosis Campaign

Dr. J. P. Leyva, head of the tuberculosis department of the Ministry of Hygiene, recently gave the following statistical data on the antituberculosis campaign in Colombia. There are 25 clinics in the country for the diagnosis and treatment of tuberculosis. In these clinics 67,312 intravenous injections, 134,579 intramuscular injections, 3,278 initial pneumothorax treatments and 38,261 insufflations were administered during 1949, in which year 385,120 persons had roentgen examinations of the chest. The results were positive in 4,923 persons, suspicious in 8,688 and negative in the rest. There are four tuberculosis sanitariums and a number of tuberculosis wards in general hospitals, where 7,851 bed patients were cared for and 1,323 surgical operations done in 1949. The mortality of these hospitalized patients was 1,385. In the national campaign 629,873 persons were handled during the year and the clinical laboratories and the vaccination centers made 16,540 examinations of sputum and 85,590 tuberculin tests. The fact that 150,000 tuberculous patients have not had medical aid is due to the magnitude of the problem rather than to deficiencies of the campaign.

Mosquitoes of Eastern Colombia

Dr. Julian de Zulueta of the Roberto Franco Institute of Tropical Diseases in Villavicencio has published (*Am. J. Trop. Med.* 30:325 [March] 1950) a study of the habits of mosquitoes in the savannas of Eastern Colombia. The observations were made during the rainy season, in June, July and November, 1948, and June 1949. He estimated that there were about 3,000,000 *mosquitoes per square kilometer.* The *Anopheles,* about 300,000 per square kilometer, included A. peryassui, A. pessoai, A. punctimacula and A. parvus. The commonest culicine species were Culex chrysotonum, Culex (melanoconion) sp. and Psorophora confinnis. The maximum distance between the site of capture and a breeding place was 1,800 meters. The mosquito count in the vicinity of the breeding place was approximately the same as the count 1 kilometer away. Biting activity of mosquitoes started shortly after sunset, continued during the night and increased slightly before sunrise; there was practically no biting activity during the day. Swarms of culicinae were seen over the savannas as early as 5 p. m., but mating of Anopheles was observed on only two occasions, at 7 p. m.; swarming males captured proved to be A. peryassui.

Personals

A new board of directors of the National Academy of Medicine of Colombia has been appointed for the period 1950-1952: Dr. Jose Vicente Huertas, president; Prof. Edmundo Rico, vice president; Dr. Augusto Gast Galvis, secretary, and Prof. Guillermo Uribe Cualla, treasurer.

Dr. Alfredo Luque B., professor of therapeutics and medicine, recently was appointed dean of the school of medicine of the National University of Colombia.

Dr. Alonso Carvajal Peralta, professor of the urological clinic of the school of medicine of the National University of Colombia, was recently appointed minister of hygiene.

The "Cruz Camilo Torres" was awarded by the national government to Drs. Emilo Robledo Correa and Miguel María Calle, both of Antioquia, on their completion of 50 years of professional work. These men are the first to receive this award, which was established Oct. 5, 1948.

Dr. Ernest Carrol Faust, professor of tropical diseases and hygiene, Tulane University of Louisiana, New Orleans, U. S. A., visited the school of medicine of the National University July 4-6. He delivered lectures to the school of medicine and to the Academy of Medicine of Colombia, on malaria in America and on amebiasis.

CORRESPONDENCE

CANCER OF THE BREAST AND ESTROGENIC THERAPY

To the Editor:—In the article "Cancer of the Breast: Classification of Cases, Criteria of Incurability and Treatment," by U. V. Portmann (*J. A. M. A.* 144:513 [Oct. 14] 1950), there are two statements which may need amendment or correction.

On page 516, first column, the next to last paragraph starts: "Although it has been proved that administration of estrogens may induce cancer of the breast and stimulate growth. . . ." Any thorough review of the subject will reveal the fact that cancer of the breast has been induced by estrogens only in especially sensitive strains of rats that were inbred in order to have a highly hereditary tendency to breast cancer. These results were obtained only with massive doses of estrogens which are in no way comparable to the doses used in human application. Nobody disagrees with the theory that estrogens probably stimulate growth of preexisting breast cancer, but the unqualified statement quoted from Dr. Portmann's paper may lead to considerable confusion and should, I believe, be properly amended.

In the last two lines of the same column the author says, "My associates and I give testosterone propionate in doses of 50 to 100 mg. intravenously three times a week." As testosterone propionate is not soluble in water, but only in oil and similar solvents, and rather poorly at that, I am afraid that 1 or 2 cc. of oil administered intravenously, just once, will not allow much further continuation of therapy. Undoubtedly the author meant to say "intramuscularly" and the error was missed in the proofreading. (A correction was published in The Journal Oct. 21, page 701.—Ed.)

Carlos P. Lamar, M.D.,
1010 Huntington Building, Miami 32, Fla.

IRRITANT ACTION OF IODOACETIC ACID

To the Editor:—Two cases of bullous dermatitis due to contact with iodoacetic acid were reported in The Journal of March 18 (page 805). It has been suggested that the chemical acted as a primary irritant, although the possibility of a sensitization mechanism has not been ruled out in these two cases. In the past we had opportunity to carry out experiments which established the fact that iodoacetic acid acts as a primary irritant. A biochemist noted the appearance of small blisters on his hands and traced them to contact with minute crystals of iodoacetate, commonly used as an enzyme inhibitor in biochemical studies. Control experiments with iodoacetate patch tests in nonexposed subjects revealed that even a 10 minute contact was sufficient to cause a painful bullous lesion at the site of application, followed by superficial epidermal necrosis and scarring in all subjects tested.

From the studies of Peters and co-workers on the biochemistry of skin in "Modern Trends in Dermatology" (edited by R. M. B. McKenna, London, Harper & Brothers, 1948) and of Dixon and Needham (*Nature* 158:432, 1946) the mode of action of iodoacetate may be explained as follows: A large variety of sulfhydryl inhibitors, such as lewisite, mustard, methyl bromide and nitrogen mustard, cause blister formation most probably through inactivation of the free sulfhydryl groups of certain essential glycolytic enzymes (hexokinase, pyruvate oxidase). It may be assumed that iodoacetate, one of the most potent sulfhydryl inhibitors, acts by a similar mechanism. This view is supported by the histochemical observation that the sulfhydryl groups of the epidermis are inactivated by iodoacetamide (Goffart, M.: Interaction of Vesicants, Oxidizing Agents and Metal Ions with the Sulfhydryl Groups in the Skin (*Arch. internat. de pharmacodyn. et de thérap.* 74:9, 1947).

Peter Flesch, M.D., and Sheldon B. Goldstone, M.D.,
Hospital of the University of Pennsylvania, Philadelphia.

REQUESTS FOR REPRINTS

To the Editor:—Physicians, those interested in investigative work in particular, have devised a penny postcard system by which they save themselves time and money in securing reprints of articles. It would be no more difficult for these efficient penny postcards to be written so that the name and address of the person requesting the reprint appear on the lower portion of the card so that this section of the card could be detached and pasted on the envelope in which the reprint is sent. This would not only save time for the author who does not have a secretary but would facilitate the delivery of the reprint because the correct name and address would be on the envelope. The author should use a good grade of glue when affixing the detached section of the card onto the envelope.

SAMPLE CARD

Date
Please send me reprints of your article entitled
....
which appeared in..................................
Yours truly,
Dr. H. Blank
detach along this line
Dr. H. Blank
352 Blank Ave.
Minea, Ill., U.S.A.

Hans G. Keitel, M.D.,
Massachusetts General Hospital,
Fruit Street, Boston 14.

INSPECTION OF HOSPITALS

To the Editor:—I have been instructed to send you a copy of a resolution passed by the Kalamazoo Academy of Medicine at their last regular meeting, Oct. 17, 1950. The resolution is as follows: "The Kalamazoo Academy of Medicine heartily endorses the editorial in The Journal of the American Medical Association of Sept. 30, 1950, on "Inspection of Hospitals by Hospitals" and that a copy of this resolution be sent to the superintendent of Bronson Methodist Hospital, Kalamazoo, Mich.; the Board of Trustees, Bronson Methodist Hospital, Kalamazoo; Superintendent of Borgess Hospital, Kalamazoo; Michigan Hospital Association; the Secretary of the Michigan State Medical Society, and the Editor of The Journal of the American Medical Association.

G. H. Rigterink, M.D.,
1110 American National Bank Building,
Kalamazoo, Mich.

Council on Medical Education and Hospitals

The following statement was adopted on Nov. 1, 1950 by the Joint Committee on Medical Education in Time of National Emergency representing the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges. This statement has been submitted to the National Advisory Committee on the Selection of Doctors, Dentists and Allied Specialists to the Selective Service System and the Health Resources Advisory Committee to the National Security Resources Board.

DONALD G. ANDERSON, M.D., *Secretary.*

MEDICAL EDUCATION IN TIME OF NATIONAL EMERGENCY

The mounting tension of the times confronts medical education with great responsibilities. Only physicians trained as highly as the state of medical knowledge and available resources will permit can serve the national interest well, whether this be in a military or in a civilian capacity. In full recognition of the need of both the armed forces and the civilian population for good medical care, as many well trained physicians as possible should be produced. To accomplish this aim in time of emergency, the following proposals are offered by *The Joint Committee on Medical Education in Time of National Emergency,* which represents the Executive Council of the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association. These proposals have been formulated in order to profit from the experiences of World War II, to avoid a repetition of the mistakes made then and to attempt to prevent the occurrence of new errors.

The duration of the emergency on which we have entered, and of the policy of limited mobilization are at this time quite unknown. The longer or more serious the emergency, the greater will be the demand for physicians—for well trained physicians. One of the hard lessons learned from the medical training program employed in World War II was that in the national interest demands for speed and quantity should never be permitted to interfere with quality.

It is, consequently, especially important that no steps be taken at the beginning of the present emergency that will interfere with the adequate training of physicians, either as medical students or as interns and residents, or with the supply of properly trained basic scientists. If, as now appears probable, the emergency bids fair to be prolonged over many years, we must exercise great care that, in instituting measures necessary to meet the pressing and immediate demands of the emergency, we do not interfere with the continuous training of physicians. Such training requires an uninterrupted supply of students through college into and through medical school and hospitals; it requires a smaller but vitally important supply of graduate students in the basic and clinical sciences; and, it requires, also, the maintenance of an adequate basic science, as well as clinical faculty. It requires continuation of the principles of individual student participation and instruction which are basic to good medical education and which would be vitiated by acceleration, overcrowding of students or loss of faculty to the point where attention to the individual student would be diminished.

At a time when the armed forces and the civilian population both at home and abroad are demanding doctors, it is the responsibility of the medical schools to outline the conditions necessary in a critical period to the adequate training of doctors so that they will best be able to serve society. These proposals attempt to outline these conditions as they apply in a time of national emergency.

Depending on the degree of emergency, three possible methods of organization of our society might be instituted:

1. Partial Mobilization
    a. Limited mobilization (as in effect now)
    b. Extensive mobilization (as in World War II)
2. Total Mobilization (as under a National Service Act)

The primary emphasis in the proposals which follow is on policies and procedures in periods of *Partial*—and not of *Total*—mobilization. Should total mobilization be adopted as a national policy, students, faculty and physicians would then be assigned to civilian or military duty or to study, teaching or research. This would probably remove the stigma from those not in military service and not wearing a uniform. It is, however, our earnest hope that adequate mobilization of national resources and manpower can be achieved without the necessity of recourse to total controls. The proposals herewith submitted are, however, adaptable to a program of total mobilization, should this be imposed.

Whether or not the country is engaged in waging war, it is probable that a state of national emergency will be long lasting. Since well trained physicians will continue to be required, the provisions necessary to guarantee the quality of their training will apply to the problems of recovery and reconstruction following cessation of military activities, quite as much as they do in a time of immediate emergency. Problems relating to transition from a time of emergency to a state of peace will be studied by the Joint Committee when some picture of the conditions likely to be prevailing at that time becomes visible. The medical profession and the medical schools stand ready to make all adjustments needed to meet the emergency. Medical schools, hospitals and other civilian institutions should study carefully the problem of utilizing personnel with maximum efficiency in the discharge of their responsibilities to the nation and should be prepared, whenever necessary to redefine in the light of these studies, their needs for medical manpower. The governmental services should likewise continually reexamine their utilization of medical manpower to the end that an expanded military establishment will not impair the health of the nation by unnecessarily disrupting the training of physicians or widely or irregularly withdrawing doctors from the care of the civilian population.

Since physicians trained by the medical schools, universities and hospitals are as essential to the government as are the graduates from the military service schools, it is encumbent upon the Federal government to guard the integrity of medical education in time of emergency, as in time of peace. The need for hasty mobilization occasioned by the Korean war has led to irregularly extensive withdrawals of professional personnel, a process which should be controlled now by the immediate utilization of central and local committees empowered to adjudicate national and local questions of availability and essentiality of medical manpower.

Proposals

1. *Deferment of Preprofessional College Students.*—A procedure for deferment of preprofessional college students in the field of medicine, dentistry, veterinary medicine and osteopathy is provided by Selective Service Local Board Memorandum No. 7. A broader plan for deferment of college students in all fields of study has been recommended to General Hershey by the five Scientific Advisory Committees to the Selective Service System and by the Healing Arts Educational Advisory Committee of the Selective Service System and has been approved by him in principle but is still under study and has not been adopted as official policy. This plan is based upon (*a*) the standing of students in the freshman and subsequent years of college and (*b*) a scholastic aptitude test. This test should be administered by a nationally recognized testing service, such as the Educational Testing Service of Princeton, N. J. This broader plan is enthusiastically endorsed by the Joint Committee. The Committee urges prompt adoption and implementation of this plan. The Joint Committee is not favorable to the policy of identification and selection by medical schools of college students as "premedical students" early in their college careers, which appears to be implied in the following sentence in the new law for induction of medical, dental and allied specialists:

"It is the sense of the Congress that the President shall provide for the annual deferment from training and service under this title of numbers of optometry students and premedical, preosteopathic, preveterinary, preoptometry and predental students at least equal to the numbers of male optometry, premedical, preosteopathic, preveterinary, preoptometry and predental students in attendance at colleges and universities in the United States at the present levels, as determined by the Director."

The Joint Committee recommends that students desiring to study medicine be included in the broad deferment plan for college students mentioned above.

2. *Duration of College Training.*—So long as the national circumstances permit the basic structure of collegiate education to continue undisturbed, four years of college training prior to entrance into medical school is desirable. In an emergency requiring extensive mobilization, the period of college training prior to entrance into medical school could be reduced to ninety semester hours, contained in three academic years of college training. This would involve 90-110 weeks of actual study.

The curriculum for those planning to enter medicine should be kept flexible during the college period. The emphasis should be on developing the students' capacities and attitudes quite as well as on instilling specific scientific knowledge. The student must continue to demonstrate superior performance in the courses that are regularly required for admission to medical school.

3. *Selection of Medical Students.*—The selection of all medical students, and, we believe, of all professional students, should be in the hands of the individual professional schools, for only in this way is it possible to secure the best candidates for medical study. The period for accepting applications and commencing and concluding the acceptance of medical students should be as uniform as possible.

Qualified individuals on active duty who secure permission from the Armed Forces, Public Health Service or Veterans Administration to apply for admission to medical school should be eligible for consideration with other candidates for admission. If accepted for admission, we believe that such students should be placed on inactive duty during the period of medical training, including undergraduate and graduate phases. During this training, they could wear special identifying insignia.

A satisfactory mechanism for the deferment of medical students who are registrants with the Selective Service System is provided at present by Local Board Memorandum No. 7.

On the basis of experience with the AST and V-12 programs in World War II, we believe very strongly that it is neither desirable to place medical students in uniform nor to have them subsidized as a group by the government. It might be wise to have a special insignia which could be worn by the students to indicate that they have been deferred, or, if commissioned, placed on an inactive duty status, for study considered essential to the health and welfare of the nation.

In place of such induction and full payment of medical students as was conducted under the AST and V-12 programs in World War II, we believe consideration should be given to the inauguration of a system of governmental scholarships which would be available to students on the basis of economic need or as a reward for academic superiority. A program providing government loans should also be considered. The medical schools should be charged with the responsibility of selecting the recipients of these scholarships or loans.

Medical schools should, of course, continue to accept properly qualified female students and properly qualified male students who may be physically unacceptable to the armed services.

4. *Obligation of Medical Students to Serve Their Country Following Graduation.*—The status of students and their obligation to serve will, it is recognized, depend on national circumstances. A plan should be devised which will define clearly the obligation of students who have been deferred for professional study to serve the government subsequent to completion of their training. *Deferment* should not indicate exemption from government service, but merely *delay or postponement* of service. Students deferred by the Selective Service System should on completion of hospital or other graduate training and on certification of availability by such appropriate agencies as the National Advisory Committee on the Selection of Doctors, Dentists, and Allied Specialists to the Selective Service System and the Health Resources Advisory Committee to the National Security Resources Board be obligated over a period of years to serve when needed in such federal services as the Armed Forces, Public Health Service or Veterans Administration hospital program for a period consistent with the obligation of others for military service. The certification of availability referred to above should be made after consideration of the civilian, public health and welfare needs, including essential research and teaching. Deferment, therefore, has as its only objective a later service in a needed capacity.

As this problem is being studied by appropriate government agencies, representatives of the medical schools and the medical profession should participate in the formulation of policies.

5. *The Medical School Curriculum.*—The continuous 36 month accelerated program in the medical schools during World War II was almost universally recognized as a major cause of production of poorly trained doctors. It was exhausting to students and faculty alike and developed immature physicians. Such a program of acceleration could not be reinstated in the present emergency without very serious disruption of the training of physicians, not only for the reasons stated above, but also because at least one-third of the medical schools have now extended one or more of their academic years from 9 months to 10, 11 or 12 months. This is because the extension of knowledge has made it appropriate for some schools to increase the length of their basic science years and because many schools have found it necessary to utilize an 11 or 12 month third or fourth year, or both, in order to provide adequate training in public health, psychiatry and other newly emphasized disciplines. Indeed only by using their clinical facilities over this extended period have a number of schools found it possible to provide an adequate training in medicine and surgery and other clinical subjects.

For the majority of medical schools the committee recommends as an essential during an extensive emergency or war that the curriculum extend over four 12 month years. This would permit continuation of the program already under way in many schools. It would also provide opportunity for inclusion during extended academic years or special periods of new material essential for national welfare and security, especially in time of emergency. Studies of atomic energy, radiation sickness and protection, blast injury, bacteriological and chemical warfare, the handling of mass casualities and other aspects of civilian defense, special problems in epidemiology, industrial medicine and hygiene, rehabilitation and utilization of manpower, military medicine, tropical medicine and needed military procedures would be included. Consideration by the Joint Committee of the content of such studies is under way in consultation with representatives of the Surgeon General of the Public Health Service, the Director of Medical Services, office of the Secretary of Defense, the Surgeons General of each of the Armed Forces, the Chief Medical Director of the Veterans Administration, the Director of the Health Resources office of the National Security Resources Board, the Medical Schools and the Medical Film Institute. It is already clear that some of the material can be integrated into the existing curriculum; it is equally clear that new time, new courses, new teachers must be found if medical students are to be trained adequately in these important areas.

During a period of extensive mobilization, it is probable that students will not be deferred during long summer vacations. If the college year ends in June, medical schools operating under the proposed four 12 month year curriculum might, therefore, be expected to begin in July. Students would then graduate from medical school in June at the end of four 12 month years. As long, however, as vacation is permitted after completion of college, and medical schools continue to commence in September, three 12 month and one 9 month year are recommended. The few schools which elect to operate on an accelerated program should, of course, be free to continue to do so. In any of these programs, summer vacation periods, normally three months in length, could be limited to one month at the end of the freshman year and either one month or two weeks at the end of the second and third years, the remaining two weeks being inserted at the end of quarters or semesters during the school year.

Many schools would doubtless wish to incorporate much of the new material into their regular courses or clerkships, extended in length. Others might wish to devote two month periods either in the summer or between quarters or semesters to special study given either by their own faculty or perhaps by representatives of governmental agencies. During such periods in schools where R.O.T.C. programs are in effect, students could be sent to a camp or a clerkship in a military hospital. In such periods some groups might be sent to special centers or schools for instruction in atomic medicine or civilian defense. Some schools operating on an accelerated program might wish to place such special instruction at the end of the established academic program. The final program should be that which in the judgment of each school is most consistent with its program of maintenance of high standards of medical education and the promotion of the public welfare. At the end of such a four year program, graduating physicians would be more mature, better trained in their profession and also have basic training in matters of public health, civilian defense and military medicine. When, in addition, they complete their hospital and graduate training, they should be prepared for duty necessary to the national health, safety and welfare without the necessity of preliminary orientation, even after entrance into active military duty.

6. *Number of Students in Medical School.*—Since the end of World War II the medical schools, by expanding their facilities and faculties, have been able to increase the number of students admitted annually from a prewar average of 6000 to over 7000. It is recognized that in an emergency of any duration a further increase in production of physicians will be necessary. Since most medical schools are today maximally expanded and some even over-expanded, it is clear that, in order to produce more physicians, they will need more faculties and facilities. To accomplish this would require additional funds and additional teachers. It is clearly the obligation of each school to explore anew its resources with a view to determining, if possible, how and to what extent it can increase its output without lowering quality and what it will require to do so.

It should be obvious that the depletion of existing faculty through service in the Armed Forces of significant numbers of active teachers, including graduate students and hospital residents, such as occurred in World War II, would not only reduce the quality of present teaching but would work in direct opposition to any program for increasing the supply of physicians. Such depletion might, indeed, necessitate a reduction in enrolment in medical schools.

7. *Faculty Requirements.*—The maintenance of adequate faculties is essential if medical schools in a national emergency are to meet the demands placed on them for the education of medical students, the advanced training of physicians, basic scientists, investigators, and new teachers; for the prosecution of research important to the national health, safety and welfare; and for the training of ancillary personnel in the health services.

To maintain the faculties of medical schools at proper strength for the accomplishment of these objectives, it is imperative that there be established without delay an effective, coordinated and enlightened program regulating the entrance into military duty, both on a voluntary and on an involuntary basis, of those who constitute the faculties of the medical schools. This program should be so designed that the stigma of evasion will not be attached to those deferred for essential activities related to medical education. It is urged that the National Advisory Committee on the Selection of Doctors, Dentists and Allied Specialists to the Selective Service System and the Health Resources Advisory Committee to the National Security Resources Board formulate without delay, for the guidance of local advisory committees, principles and policies governing this important phase of the selection and distribution of physicians between the civilian population and the armed services.

The actual selection of individuals at all levels, in conformity with these principles and policies, should reside in local communities, organizations and institutions, so far as education is concerned in medical schools and teaching hospitals. It is strongly urged that the local committees in areas in which medical schools are located include the deans of such schools or their representatives. The educational institutions, with which this statement is particularly concerned, should be directed to assess and report not only their minimum needs for continuing operation, but also their capacity to expand and the requirements for such expansion without deterioration of quality of education.

The minimum faculty essential for the conduct of a satisfactory program of medical education must be carefully safeguarded and maintained. This minimum will vary from medical school to medical school and will depend on many factors such as the size of the school and its other responsibilities for research, for medical service and for the teaching of groups other than undergraduate medical students, e. g. graduate students, practicing physicians and students in other colleges of the university of which the medical school is a part.

This minimum number of essential teachers obviously must be related to the size of the normal peacetime faculty of the medical school; e. g., some medical schools can release very few faculty members without seriously handicapping their teaching program, while other medical schools, particularly those with relatively larger faculties, can release more without deterioration in the quality of their instructional programs. On the other hand certain schools ought to add faculty members.

Local and state advisory committees to the Selective Service System should be required to discover the needs of the individual medical schools for faculty members both for undergraduate medical student instruction and for the other essential activities carried out by the medical schools and to make adequate allowance for these needs.

In time of limited or extensive mobilization the problem of faculty morale is a difficult one. Essential teachers who are liable for military service must either be deferred or inducted and assigned on inactive duty to the medical school. There are, however, those among the faculty who are unwilling to be declared essential. Some of these might be appointed consultants to military hospitals in the vicinity so that they may be of service from time to time on a temporary duty status. Some may be allowed to enter service. For these, however, the period of active duty should be for a clearly limited period of time, such as two years, after which they should be returned to the faculty. In their military assignment consideration should be given to their technical knowledge and skills and their ability to teach. In their place on the faculty, substitutes or exchanges might be released from active service. Such exchanges should be equivalent both as to function and competence. Such a rotation of faculty members while, of course, easier to implement in the clinical than in the basic science fields, and while presenting some problems in the development of sustained and continuing programs of instruction, would be preferable to the loss of key faculty members for tours of duty lasting four, five or more years. Perhaps a similar scheme of rotation between civilian and military duty could be extended to many practicing physicians.

Such arrangements for rotation would seem to offer great advantages in terms of (1) supply, (2) morale, (3) professional ability of medical officers and faculty alike. If faculty members on active duty had the opportunity to return to the medical schools for teaching, study and research, their incentive and skill would be increased. Likewise, their presence in the schools would be of great value in the training of students in the meaning and the value of military training.

The maintenance of a continuous supply of new faculty members is as great a need as is the continuous supply of premedical and medical students. This is true both for basic science and clinical faculty.

8. *Graduate Students in the Basic Medical Sciences.*—To maintain the flow of basic science faculty, graduate students in the basic sciences, both in college and medical school must be deferred for study, teaching and research. The failure to do this in World War II produced a severe shortage in supply of basic

science preclinical faculty, a shortage from which we will suffer and which would be seriously exaggerated if a more intelligent policy were not put into effect in the present emergency.

It is imperative that this need be kept in mind by the National Advisory Committee on the Selection of Doctors, Dentists and Allied Specialists to the Selective Service System and the Health Resources Advisory Committee to the National Security Resources Board, and by local advisory committees. It may be easier for local committees to understand the community needs for medical practitioners and even for hospital residents than for graduate and postgraduate students and basic science faculty. It is, therefore, essential that clear instructions be issued so that the significant part that men in these areas play in the production of qualified physicians is fairly evaluated and clearly understood.

9. *Interns.*—All internships should be at least 12 months in length. When feasible in light of the needs, some longer internships should be permitted. The nine month internships during World War II were universally recognized as unsatisfactory. All medical school graduates should be permitted an internship or equivalent training as graduate or postgraduate students. Interns and graduate students should be selected by the hospitals and medical schools as in peacetime.

10. *Residents.*—Residency training is a form of postgraduate education without which it is impossible to produce a continuing flow of competent teachers, clinical investigators and specialists. These residents are essential to adequate patient care in the better hospitals. Furthermore these residents constitute one of the largest and most helpful group of teachers and research workers.

It is recognized that a national emergency with its immediate demands for men will result in some limitation of residency training. It cannot be too strongly emphasized, however, that no matter how serious the emergency may become, there will always be urgent need for a program that provides for the continuous training of residents.

During World War II a percentage of residents were deferred for 9-18 months of residency. Because, however, residents completing even a full "9-9-9" experience were insufficiently trained to justify the temporary loss in medical manpower entailed in their residency training, the nine months' residency in World War II was unsatisfactory. The saving in time under the "9-9-9" program proved to be false economy.

It is now recognized that internship and residency training are as integral parts of the training of a physician as is his undergraduate medical course. Consequently a policy of indiscriminant issuance of commissions to residents who volunteer for service (under Public Law 779), without possibility of deferment to meet essential situations, would be shortsighted. Its general application might mean that, for all practical purposes, next year there would be no residents. Even if a policy of return of officers from active duty to undertake residency training is undertaken, it may be two or three years before such officers are returned. There will be a serious break in the chain of residency training. This will interrupt the training of specialists important alike to the Armed Forces and to the civilian population and will disrupt the clinical clerkship teaching of medical students.

It is recognized that opportunities for residency training should be available to properly qualified individuals who have been in active service; and that following one or two years of hospital training after graduation from medical school, many young physicians could be expected to serve on active military duty for a suitable period before returning to undertake or to complete residency training. This program should not, however, be permitted to interfere with a policy of deferment of selected junior as well as senior residents for proper training in teaching hospitals. This policy should become the immediate responsibility of the National Advisory Committee on the Selection of Doctors, Dentists and Allied Specialists to the Selective Service System and the Health Resources Advisory Committee to the National Security Resources Board who should so advise each local advisory committee so that the presently threatened disruption of the residency training program can be brought under control.

11. *Medical Education Under Universal Military Training or a National Service Act Involving Total Mobilization.*—No extensive discussion is attempted here of the effect of a Universal Military Training Program or of a National Service Act upon medical education. It is felt such a discussion should be deferred until more specific information is available concerning such programs or the possibility of their development. It must be clear, however, that even under U.M.T. or a National Service Act adequate provision must be made for a continuing flow of premedical and other science students, medical students, interns, residents and graduate students in the basic sciences and for retention of adequate faculty to supply the necessary training. The proposals which have been submitted in this report are, it is believed, readily adaptable to conditions of full mobilization under a National Service Act.

In any universal military training program which might be adopted, provision should be made for a delay in the period of required service of qualified preprofessional college students until they have completed their college and professional training or have discontinued the program. This plan should employ the principles recommended earlier in this document for the deferment of outstanding college students under the present Selective Service Act. Such students would thus be able to serve society and their government later in their special needed capacity. They should not be called upon to perform double duty for the Armed Forces.

Summary

1. To insure the continued production of well qualified medical graduates, provision must be made for an adequate supply of premedical students.

2. The duration of premedical study should not be reduced below 90 semester hours, the equivalent of 3 academic years.

3. All medical students should be selected by the medical schools.

4. Subsequent to graduation and internship, deferred medical students should, if certified as available by such appropriate agencies as the National Advisory Committee on the Selection of Doctors, Dentists and Allied Specialists to the Selective Service System and the Health Resources Advisory Committee to the National Security Resources Board, be obligated to serve when needed in the Armed Forces or other specified government services.

5. The curriculum of medical study should be reorganized to give proper emphasis to subjects of particular importance for the national health, security and welfare in time of national emergency.

6. Medical schools should exert every effort to admit as many medical students as they can train without deterioration of the quality of medical training they can provide. Provision should be made for the increased financial support essential to the provision and maintenance of the increase in faculty, facilities and buildings required to accomplish the proposed increase in enrolments.

7. The maintenance and replenishment of adequate faculties in the medical schools are absolutely essential to the continuing production of well trained physicians to meet the needs of the civilian population and Armed Forces.

8. All medical school graduates should have an internship or graduate or postgraduate training of 12 or more months' duration.

9. The continuation of an active residency training program is essential to adequate professional training, teaching and medical care, even in the gravest emergency.

10. Provision for training of young men in the basic medical sciences, including graduate training, is also essential for the teaching and research functions of the medical schools and for the prosecution of research programs elsewhere. Properly qualified personnel, whether they do or do not hold a degree in medicine, should be deferred or assigned to these activities rather than to active military duty.

Conclusion

In time of emergency, just as in time of peace, an important phase of national security—the maintenance of health—demands highly trained physicians in sufficient numbers. The objective of the present proposals is the maintenance of this supply of physicians. These proposals reflect the critical and intensive thinking of medical educators who since World War II have been studying this problem so as to benefit from the experience and mistakes of World War II. They have been developed after full opportunity to obtain the suggestions of representatives of the governmental agencies concerned. These experiences, and consequently these proposals, emphasize the fundamental truth that in medicine there can be no substitute for adequate training. It is urged, therefore, that in the best interest of the nation this principle be recognized fully in all plans for medical education that may be adopted in the present or future emergencies.

Joint Committee on Medical Education in Time of
National Emergency

Representing the Association of American
Medical Colleges
Dr. Stockton Kimball, Chairman
Dr. Joseph C. Hinsey
Dr. A. C. Bachmeyer
Dr. Dean F. Smiley
Dr. George P. Berry

Representing the Council on Medical Education and
Hospitals of the American Medical Association
Dr. Herman G. Weiskotten
Dr. Harvey B. Stone
Dr. Victor Johnson
Dr. Donald G. Anderson, Secretary

Liaison Members
Dr. Robert Hall, Secretary, Council on National Emergency Medical Service, American Medical Association
Dr. Harold S. Diehl, Member, Council on National Emergency Medical Service, American Medical Association
Dr. B. R. Kirklin, Secretary, Advisory Board for Medical Specialties
Dr. David Ruhe, Director, Medical Film Institute

Medical Motion Pictures

Subcutaneous Blood Flow in the Bat. Reel I, Vascular Patterns. Reel II, Behavior of Blood and Vascular Components. Reel III, Active Vasomotion. 16 mm., black and white, sound, showing time 30 minutes. Prepared by Richard L. Webb, Ph.D., Department of Anatomy, and Paul A. Nicoll, Ph.D., Department of Physiology, Indiana University, Bloomington. Supported in part through a research contract with the Air Material Command, Wright Field, Dayton, Ohio. Produced in 1948 by and procurable on rental or purchase from Audio-Visual Center, Indiana University, Bloomington, Ind.

These films were designed to show peripheral circulation and the nature and behavior of minute blood vessels in their normal environment. By spontaneous and induced vasoconstriction, this motion picture portrays the slow motion in blood vessels of a mammalian species. The red blood cells appear as biconcave disks, which is a distinct improvement over previous vascular pictures of the mesentery of the frog, where oval nucleated cells are seen. Vasomotion in arterioles by contraction of vitally dyed spiral smooth muscles, rhythmic contractions of the vein, functions of the valves in the veins, action of precapillary sphincters and differentiation of endothelial cells, leukocytes and thrombocytes are all well visualized. The thrombocyte and leukocyte reaction to injury is also adequately portrayed.

While these films show superb photomicrographic technic, the ideal motion picture on this subject should have interspersed short sections of animated drawings to allow the student to visualize the events taking place. The only photographic fault appears as the camera moves, when one notes a matrix of cellular debris which is apparently adherent to the lens system. This production should be excellent for showing to physiology and biologic science students.

Each of the three reels deals with a definite phase of circulation in its respective title and may be used separately and repeatedly for intensive studies of its special province. It is suggested that the first and second reels be used as a unit and the third reel as supplementary material.

Obstetric Roentgenography. 16 mm., black and white, sound, showing time 16 minutes. Prepared in 1950 by Paul C. Swenson, M.D., and T. L. Montgomery, M.D., Departments of Radiology, Obstetrics and Gynecology, Jefferson Medical College of Philadelphia. Procurable on loan from Film Library, Jefferson Medical College, 1025 Walnut Street, Philadelphia 7.

This motion picture describes the use of a modified Colcher-Sussman technic of pelvimetry and cephalometry with emphasis on the need for pelvic classification and careful clinical correlation in interpreting the observations. Emphasis is placed on the need for observation of the fetal-pelvic relationships at the time of labor.

The flat pelvis demonstration fails to mention the external characteristics, but this is not objectionable, inasmuch as the present trend is toward evaluating internal measurements, those which are necessary for the fetal head to pass through the pelvis. Some may question the cephalopelvic disproportion sequence in one section of the film which does not appear to exist. It seems to be an increased pelvic inclination instead of a disproportion. This sequence should be clarified. There may be exception to the statement "We are now going to do a sterile vaginal examination." This terminology should be discouraged.

With these exceptions the information given in the film is accurate. It should be suitable for general medical society meetings, general practitioners, medical students and nursing education. The photography ranges from poor to good. A black background in the early scenes showing several types of pelves would have been more suitable.

Your Friend in Blue. 16 mm., color, sound, showing time 30 minutes. Produced in 1950 by Division of Public Health Education, Minnesota Department of Health. Procurable on loan within the state of Minnesota and on purchase from Visual Education Dept., Minnesota Dept. of Health, University of Minnesota, Minneapolis.

This motion picture was produced to recruit more young women for training in the field of nursing and to interest local community groups in public health nursing service. It gives an over-all view of the education, functions and services of a public health nurse in a public health program. It also offers a picture of all the services provided by a public health nurse with more detail of the nursing care of the chronically ill. Services in the rural area and small town are shown in the nurse's opportunity to serve the general community. The film illustrates cooperation among several community agencies and shows the practicing physician in the promotion of a generalized public health nursing program. Though it does not imply that a nurse is associated with the health department, the latter is available for such assistance as she might need.

The film is well suited for showing to community groups for promotion of public health nursing services where such services do not exist; for use in high schools and colleges as a means of recruitment; to orient student nurses with a generalized community nursing program, and for medical student information. It could also be used to advantage in interpretation of the public health nurse's function to private physicians and personnel of community health agencies. The defects are largely omissions; however, a single film cannot include the whole story.

An explanation of the organization of the community that sponsors such programs would have been helpful. It must be remembered that this film was produced to develop interest in and to interpret the services of the public health nursing field. It was not intended for use as an instructional tool in the technics of nursing; however, the instructors in the school of nursing could supplement the film with demonstrations of nursing technics. In some places the color is very poor and underexposed. In general, the photography is fair to excellent. The narration is satisfactory and the sound good. At times the story moves rather slowly.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Standards Applicable to Drugless Healers.—The plaintiff, administratrix of her husband's estate, filed suit for damages for his death, which was alleged to have been due to the malpractice of the defendant, a drugless healer. From an adverse judgment, the defendant appealed to the Supreme Court of Washington.

For several days the deceased had been bothered by nausea and a pain in his stomach. The muscles of the abdomen were somewhat rigid. At his wife's suggestion, he went to the defendant, a drugless healer, who was of the opinion that the deceased was undergoing a "reaction." After checking with a stethoscope, the defendant applied hot and cold packs and administered an electrical massage with a device known as a "sine wave." A form of laxative known to drugless healers as a "42" was also given. The same treatment was prescribed for the next 10 days, at the end of which time the plaintiff begged the defendant to call in a medical doctor. The defendant replied, "We don't need an M.D. If you call an M.D. he will kill him." The defendant also said he would "throw up" the case if a doctor was called. The next day, after the application of more hot and cold packs and a "sine wave" treatment, the deceased regurgitated matter that the defendant said was "pieces of the bowel." Defendant then massaged the deceased's abdomen, but when he left the house he told the plaintiff that she could now "call an M.D." He said, however, that he would not stay until an M.D. arrived, because he could not "be here when an M.D. comes." A physician, called to the plaintiff's home the next morning, immediately diagnosed her husband's condition as appendicitis and had him removed to a hospital, where he was given oxygen and treatment for shock. The deceased was moribund, and his abdomen was extremely rigid and distended. An operation was performed that same day, but no attempt at exploration was made after the incision was made, for the reason that a large quantity of pus was encountered, and the doctors thought it best simply to try to drain the matter present before any further surgery was attempted. The plaintiff's husband died within a week, and an autopsy indicated that death resulted from peritonitis and that the appendix had completely rotted off from the portion of the bowel to which it is normally attached.

The Supreme Court first stated four basic propositions applicable to the case. The first of these is that the defendant is not a doctor. An examination of all the statutes bearing on the subject, said the court, nowhere reveals any reference to drugless healers as "doctors," nor will the language used sustain even a remote inference that they are permitted to practice any phase of medicine or surgery. Limitation in the statutes specifically negates such an assumption. The second proposition is that drugless healers cannot qualify as expert witnesses as to matters in the general realm of medicine and surgery. The fields of drugless healing and surgery are not coextensive, and we are here concerned with the field in medicine and surgery that lies outside of the drugless healing field. The third proposition is that drugless healers do not belong to a school of medicine. They do not study in medical colleges as defined by statute, but in drugless healing schools. Thus, the particular school of their attendance is not a medical school, nor can such a school be said to adhere to a school of medicine, in the sense that a particular school is identified with a recognized and distinct approach to medical practice or opinion. This is so, notwithstanding the fact that some subjects taught in medical schools are also taught in the drugless healing school. The legislature required drugless healers to pursue certain studies in order that they would know enough not to injure patients, and to recognize cases where their limited methods are inefficacious and the services of a doctor are required. The fourth and last proposition is that one who does not have a license to practice medicine and surgery is, nevertheless, liable for malpractice when he assumes to act as a doctor and is to be judged as if he were a doctor because of those facts. The defendant's theory that a drugless healer is licensed to treat all human maladies and must be exonerated from all liability on his part, if he resorts only to the particular methods of his cult for determining the nature of diseases and the remedies therefor, no matter how serious the consequences, cannot be entertained. If there is a reasonable general agreement as to what is the proper medical treatment for a disease or an organic disorder, the question of whether the treatment, in a particular case, was correct must be determined by the testimony of expert witnesses from the medical field, who alone are qualified to speak. While it is true that a practitioner, such as the defendant, is not, in his limited field, required to be an insurer of results any more than a doctor of medicine, still, if he steps out of his limits and undertakes to treat a disorder for which, in the highest level of medical science, there is a generally recognized treatment, such interloper must be held accountable to the accepted standard of treatment.

The defendant first objected to a hypothetical question, which the court permitted to be answered. It is as follows: ". . . *if a patient presents symptoms of pain in the stomach and* throughout the abdomen, nausea and rigidity of muscles in the abdomen, with temperature, and is treated for a reaction for a period of 12 days, and his condition grows much worse, should a sanipractic doctor of average skill and experience of those of the same school of practice in Spokane, Wash., and with the use of ordinary care, be led to suspect that the patient is suffering from appendicitis?" It was, said the Supreme Court, incumbent on the plaintiff to show that there had been a wrong diagnosis and that it had been followed by treatment that was injurious. It was amply clear that the deceased had many of the characteristic symptoms of appendicitis and the defendant must have been aware that appendicitis was a probability, if not a certainty. If it was appendicitis, he had no right to treat it; and, if there was a possibility that it was appendicitis, he had no right to gamble with the deceased's life, on the theory that it might be something else. The gist of the defendant's argument is that a wrong rule of law was followed with regard to the admission of evidence and the effect allowed to be given to the evidence. His position is that a doctor does not incur liability for his mistakes, if he has used methods recognized and approved by those reasonably schooled in the profession, and that the testimony of other doctors that they would have followed a different course of treatment than that followed by the defendant, or a showing of a disagreement of doctors of equal skill and learning as to what the treatment should have been does not establish negligence. We may grant, said the court, that there has been such a rule applied between doctors, but we repeat that the defendant is not a doctor. The court should not apply such a rule to drugless healers, because it is obvious that their qualifications are so far inferior to those of a doctor that the law will conclusively presume that they are not on terms of equality which would entitle their opinions to cancel out the best medical opinion available. Should any court so hold, it would bring reproach on judicial processes by departing from the time-honored rules of evidence devoted to the most trustworthy ways of revealing truth, which has always admitted the best evidence available. The rationale of the rule is applicable only where doctors who are equal in their qualifications are concerned and where no recourse can be had to higher learning or greater experts.

The defendant next contended that the Appellate Court should have given a certain instruction requested by him. Among other things, this refused instruction said, "In this connection you are further instructed that if you find from a preponderance of the evidence in this case the deceased, Morris C. Kelly, or the plaintiff herein knew at the time they appointed the defendant that he belonged to a branch of the drugless school of healing which does not follow surgery, then the plaintiff in this case cannot charge the defendant with negligence in failing to advise or perform a surgical operation as treatment for which the said Morris C. Kelly was suffering." The defendant argued that without this paragraph the jury might have decided that it was the duty of the defendant, practicing as a drugless physician, to abandon his own method of drugless treatment in an appendicitis case and run to a surgeon for help. Such a finding by the jury would be justified as to the facts and correct as to the law, said the Supreme Court. A drugless healer is in a position of trust and confidence as regards his patient, and, if he knows or should know that any treatment he is permitted to use will be of no benefit to the patient, it is his duty to so advise. If there is another mode of treatment that is more likely to be successful, which treatment he does not have the right to give, it is his duty to send the patient to a doctor. The relationship between a physician and his patient is predicated on the proposition that the physician has special knowledge and skill in diagnosing and treating diseases and disorders. In the case at bar, the Supreme Court continued, the defendant knew or should have known that the treatment called for was beyond the scope of his license and ability. If a practitioner, such as the defendant, declines to discharge his duty to call in a qualified doctor when the situation obviously calls for it, he proceeds at his peril.

The defendant made much of the contention that the deceased had assumed the risk and was guilty of contributory negligence because he knew the defendant would neither operate nor advise an operation. The Supreme Court, however, said that, on the question of contributory negligence in such a case as the one at bar, the law is that it is not part of the duties of a patient to distrust his physician, or to set his own judgment against that of the expert whom he has employed to treat him, or to appeal to other physicians to ascertain if the physician is performing his duty properly. The very relation assumes trust and confidence on the part of the patient in the capacity and skill of the physician, and it would indeed require an unusual state of facts to render a person who is possessed of no medical skill guilty of contributory negligence just because he accepts the word of his physician and trusts the efficacy of the treatment prescribed by him. A patient has the right to rely on the professional skill of his physician, without calling others in to determine whether he really possesses such skill or not. The patient is not bound to call in another physician, unless he becomes fully aware that the physician has not been, and is not, giving proper treatment. On the basis of all the evidence, the court was of the opinion that the plaintiff was entitled to recovery and the judgment against the drugless healer was therefore affirmed.—*Kelly v. Carrol, et ux 219 P. (2d) 79 (Wash., 1950).*

Autopsies: When Court Should Permit Exhumation and Autopsy.—In an action for damages for the death of the plaintiff's husband following an automobile accident, the defendant filed a motion for permission to exhume the body of the deceased and to perform an autopsy thereon. From an order denying the motion, the defendant appealed to the Supreme Court of New Hampshire.

The defendant's motion alleged, among other things, that he was informed and believed that the deceased died of cancer and not as a result of the automobile accident in which he was involved; that permission to perform an autopsy was sought of and refused by the plaintiff; that unless an autopsy is performed the defendant will be deprived of information necessary to properly prepare and adequately defend the claims being presented on behalf of the plaintiff. The question before this court, said the Supreme Court, is whether the trial court's findings could reasonably be made on the evidence before him.

If the interests of justice demand it, the Supreme Court said, the trial court has the authority, in the exercise of a sound discretion, to order an autopsy. We agree that "the quiet of the grave, the repose of the dead, are not lightly to be disturbed. Good and substantial reasons must be shown before disinterment is sanctioned." However, the right to have a dead body remain unmolested is not an absolute one; it must yield where it conflicts with the public good or the demands of justice. In this case, continued the Supreme Court, the deceased had filed an action against the defendant for $25,000 after an automobile accident. He died 11 months after the accident, and his widow, the plaintiff, now claims his death, as well as his disability during the period between the accident and his death, was due to and caused by the accident. The defendant maintains that an autopsy is necessary in order to determine the nature of the deceased's injuries as well as the cause of his death.

It seems to us, said the Supreme Court, that an autopsy is very material to the defense of this action by the defendant; it may be vital, and the fact that the defendant might have other sources of evidence on the subject would not prevent his being granted the relief sought. We find no evidence in the record which could reasonably justify a denial of the defendant's motion for an autopsy under proper safeguards. Accordingly the action of the trial court denying the defendant the right to exhume the body of the deceased and to perform an autopsy thereon was reversed and permission therefor was granted.—*Kusky v. Laderbush,* 74 A (2d) 546 (New Hampshire 1950).

Paternity: Court's Right to Compel Submission to Blood Grouping Tests.—The plaintiff wife filed suit for divorce on the ground of desertion, and the defendant counterclaimed for divorce on the grounds of desertion and adultery, alleging that a child born to the plaintiff was not his daughter but was the result of an adulterous relationship. The defendant asked for an order requiring the plaintiff, the child and himself to submit to blood-grouping tests. The motion was heard in the superior court of New Jersey, chancery division.

The New Jersey statutes provide: "Whenever it shall be relevant in a civil action to determine the parentage or the identity of any child or other person, the court, by order, may direct that any party to the action and the person whose parentage or identity is involved submit to one or more blood-grouping tests, to be made by duly qualified physicians under such restrictions and directions as the court or judge shall deem proper." The court said that in its view the intent of the legislature in enacting the above statute reflected a recognition of "the theory that the evolution in practical affairs of life, whereby the progressive and scientific tendencies of the age are manifest in every other department of human endeavor, cannot be ignored in legal procedure, but that the law, in its effort to enforce justice by demonstrating a fact in issue, will allow evidence of those scientific processes which are the work of educated and skilful men in their various departments, and apply them to the demonstration of a fact."

In the first place, continued the court, it seems clear that the accuracy and worth of the tests has been abundantly shown. "On this point it is enough to cite the report of the American Medical Association's committee on Medicolegal Blood-Grouping Tests (*J. A. M. A.* **108**:2138 [June 19] 1937), which shows that, although such tests cannot prove paternity and cannot always disprove it, they can disprove it conclusively in a great many cases provided they are administered by specially qualified experts." In a prior case decided by the Supreme Judicial Court of Maine the worth of these tests was recognized and it was held that where exclusion of parentage was shown by competently given tests the evidence was conclusive (*Jordan v. Mace,* 69 A [2d] 670; *J. A. M. A.* 142:750 [March 11] 1950). To the same effect is a recent case decided by the New York Appellate Division (*Commissioner of Welfare ex rel v. Costonie,* 97 N. Y. S. [2d] 804; *J. A. M. A.* 144:573 [Oct. 14] 1950). If blood tests are accurate, relevant and on their face apparently authorized by statute, continued the court, an order for such a test on proper terms should be granted.

Continuing, the court concluded that a case such as this comes within the words of the statute that "Whenever it shall be relevant in a civil action to determine the parentage or the identity of any child . . . (emphasis added)" and such a holding is not a violation of the Constitution. The health of our judicial system, depending as it does on the finding of truth so that justice may be done, is of equal importance with the physical health of the community and a blood-grouping test, made by skilled physicians, does not constitute the mythical nose of the camel under the tent which will be followed by such extreme measures as the trepanning of the skull of a witness. Accordingly the defendant's motion requiring the plaintiff, the defendant and the child to submit to blood tests by two physicians duly qualified by training and experience was granted.—*Anthony vs. Anthony,* 74 A (2d) 919 (New Jersey 1950).

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Standards Applicable to Drugless Healers.—The plaintiff, administratrix of her husband's estate, filed suit for damages for his death, which was alleged to have been due to the malpractice of the defendant, a drugless healer. From an adverse judgment, the defendant appealed to the Supreme Court of Washington.

For several days the deceased had been bothered by nausea and a pain in his stomach. The muscles of the abdomen were somewhat rigid. At his wife's suggestion, he went to the defendant, a drugless healer, who was of the opinion that the deceased was undergoing a "reaction." After checking with a stethoscope, the defendant applied hot and cold packs and administered an electrical massage with a device known as a "sine wave." A form of laxative known to drugless healers as a "42" was also given. The same treatment was prescribed for the next 10 days, at the end of which time the plaintiff begged the defendant to call in a medical doctor. The defendant replied, "We don't need an M.D. If you call an M.D. he will kill him." The defendant also said he would "throw up" the case if a doctor was called. The next day, after the application of more hot and cold packs and a "sine wave" treatment, the deceased regurgitated matter that the defendant said was "pieces of the bowel." Defendant then massaged the deceased's abdomen, but when he left the house he told the plaintiff that she could now "call an M.D." He said, however, that he would not stay until an M.D. arrived, because he could not "be here when an M.D. comes." A physician, called to the plaintiff's home the next morning, immediately diagnosed her husband's condition as appendicitis and had him removed to a hospital, where he was given oxygen and treatment for shock. The deceased was moribund, and his abdomen was extremely rigid and distended. An operation was performed that same day, but no attempt at exploration was made after the incision was made, for the reason that a large quantity of pus was encountered, and the doctors thought it best simply to try to drain the matter present before any further surgery was attempted. The plaintiff's husband died within a week, and an autopsy indicated that death resulted from peritonitis and that the appendix had completely rotted off from the portion of the bowel to which it is normally attached.

The Supreme Court first stated four basic propositions applicable to the case. The first of these is that the defendant is not a doctor. An examination of all the statutes bearing on the subject, said the court, nowhere reveals any reference to drugless healers as "doctors," nor will the language used sustain even a remote inference that they are permitted to practice any phase of medicine or surgery. Limitation in the statutes specifically negates such an assumption. The second proposition is that drugless healers cannot qualify as expert witnesses as to matters in the general realm of medicine and surgery. The fields of drugless healing and surgery are not coextensive, and we are here concerned with the field in medicine and surgery that lies outside of the drugless healing field. The third proposition is that drugless healers do not belong to a school of medicine. They do not study in medical colleges as defined by statute, but in drugless healing schools. Thus, the particular school of their attendance is not a medical school, nor can such a school be said to adhere to a school of medicine, in the sense that a particular school is identified with a recognized and distinct approach to medical practice or opinion. This is so, notwithstanding the fact that some subjects taught in medical schools are also taught in the drugless healing school. The legislature required drugless healers to pursue certain studies in order that they would know enough not to injure patients, and to recognize cases where their limited methods are inefficacious and the services of a doctor are required. The fourth and last proposition is that one who does not have a license to practice medicine and surgery is, nevertheless, liable for malpractice when he assumes to act as a doctor and is to be judged as if he were a doctor because of those facts. The defendant's theory that a drugless healer is licensed to treat all human maladies and must be exonerated from all liability on his part, if he resorts only to the particular methods of his cult for determining the nature of diseases and the remedies therefor, no matter how serious the consequences, cannot be entertained. If there is a reasonable general agreement as to what is the proper medical treatment for a disease or an organic disorder, the question of whether the treatment, in a particular case, was correct must be determined by the testimony of expert witnesses from the medical field, who alone are qualified to speak. While it is true that a practitioner, such as the defendant, is not, in his limited field, required to be an insurer of results any more than a doctor of medicine, still, if he steps out of his limits and undertakes to treat a disorder for which, in the highest level of medical science, there is a generally recognized treatment, such interloper must be held accountable to the accepted standard of treatment.

The defendant first objected to a hypothetical question, which the court permitted to be answered. It is as follows: ". . . if a patient presents symptoms of pain in the stomach and throughout the abdomen, nausea and rigidity of muscles in the abdomen, with temperature, and is treated for a reaction for a period of 12 days, and his condition grows much worse, should a sanipractic doctor of average skill and experience of those of the same school of practice in Spokane, Wash., and with the use of ordinary care, be led to suspect that the patient is suffering from appendicitis?" It was, said the Supreme Court, incumbent on the plaintiff to show that there had been a wrong diagnosis and that it had been followed by treatment that was injurious. It was amply clear that the deceased had many of the characteristic symptoms of appendicitis and the defendant must have been aware that appendicitis was a probability, if not a certainty. If it was appendicitis, he had no right to treat it; and, if there was a possibility that it was appendicitis, he had no right to gamble with the deceased's life, on the theory that it might be something else. The gist of the defendant's argument is that a wrong rule of law was followed with regard to the admission of evidence and the effect allowed to be given to the evidence. His position is that a doctor does not incur liability for his mistakes, if he has used methods recognized and approved by those reasonably schooled in the profession, and that the testimony of other doctors that they would have followed a different course of treatment than that followed by the defendant, or a showing of a disagreement of doctors of equal skill and learning as to what the treatment should have been does not establish negligence. We may grant, said the court, that there has been such a rule applied between doctors, but we repeat that the defendant is not a doctor. The court should not apply such a rule to drugless healers, because it is obvious that their qualifications are so far inferior to those of a doctor that the law will conclusively presume that they are not on terms of equality which would entitle their opinions to cancel out the best medical opinion available. Should any court so hold, it would bring reproach on judicial processes by departing from the time-honored rules of evidence devoted to the most trustworthy ways of revealing truth, which has always admitted the best evidence available. The rationale of the rule is applicable only where doctors who are equal in their qualifications are concerned and where no recourse can be had to higher learning or greater experts.

The defendant next contended that the Appellate Court should have given a certain instruction requested by him. Among other things, this refused instruction said, "In this connection you are further instructed that if you find from a preponderance of the evidence in this case the deceased, Morris C. Kelly, or the plaintiff herein knew at the time they appointed the defendant that he belonged to a branch of the drugless school of healing which does not follow surgery, then the plaintiff in this case cannot charge the defendant with negligence in failing to advise or perform a surgical operation as treatment for which the said Morris C. Kelly was suffering." The defendant argued

American Journal of Psychotherapy, New York

4:405 588 (July) 1950 Partial Index

SYMPOSIUM ON PROBLEM OF MEDICAL AND LAY PSYCHOTHERAPY
Medical View I Galdston —p 419
Who Shall Practice Psychotherapy? R M Lindner —p 432
Why Patients Discontinue Treatment in Mental Hygiene Clinic F Dengrove and S B Kutash —p 457
Clinical Significance of Mosaic and Rorschach Methods L Zucker —p 473
Bipolarity in Diagnosis Through Art E Zierer —p 488

Archives of Dermatology and Syphilology, Chicago

62:181-350 (Aug) 1950

Lesions of Scalp in Certain Scaly Dermatoses Histologic Study C W Laymon —p 181
*Comparison of Muscle Biopsies and Bone Marrow Examinations in Dermatomyositis and Lupus Erythematosus J F Madden and I M Karon —p 192
Poikiloderma Vasculare Atrophicans Report of Case Due to Exposure to Cold J G Downing and J M Edelstein —p 206
Beryllium Window Radiations for Superficial Therapy A C Cipollaro —p 214
Absorption of Roentgen Rays with Use of Beryllium Window Tube M F Engman Jr, L P Weber and W G Elle —p 222
Outcome of Pregnancies of Women Treated with Aqueous Penicillin for Early Infectious Syphilis Prevention of Prenatal Syphilis H N Bundesen J Rodriquez, H C S Aron and B F Korman —p 250
Shielding of Skin Against Roentgen Radiation by Plastic Compounds J W Wilson —p 257
Dermatologic Aspects of Insect Repellents and Toxicants L Goldman —p 245
*Streptomycin Treatment of Granuloma Inguinale H Pariser S Z Goldberg and G H Mitchell —p 261
Effect of Yeast Extract on Microsporum Audouini and Microsporum Canis K Loewenthal —p 265
*Chemosurgical Treatment of Melanoma Microscopically Controlled Method of Excision F E Mohs —p 269
Peculiar Deformity of Hands Occurring in Epidermolysis Bullosa M H Cohen and H H Hopkins —p 280
Treatment of Onychomycosis with Ammoniacal Silver Nitrate Solution A G Franks and A Sternberg —p 287
Therapeutic Value of Chloramphenicol in Group of Dermatoses of Established or Questionable Virus Etiology L G Beinhauer —p 290
Blood Vessels of Skin in Chronic Venous Insufficiency Clinical and Pathologic Study M H Kulwin and L A Hines Jr —p 293
Atypical Keratosis Pilaris F P Coombs and T Butterworth —p 305
Hypoallergenic Penicillin in Oil S W Simon and M D Feldman —p 314
Influence of Grenz Rays on Histamine Induced Manifestations G Bucky, F Blank and I H Distelheim —p 319

Dermatomyositis and Lupus Erythematosus —The difficulty encountered in differentiating acute disseminated lupus erythematosus from dermatomyositis prompted Madden and Karon to evaluate muscle biopsies done on patients with these diseases, and, because Hargraves found the so-called L E cell in bone marrow preparations from patients with acute disseminated lupus erythematosus, they also searched for such cells The authors compare and correlate observations made on 27 patients, eight of whom had dermatomyositis and 19 of whom had lupus erythematosus The 12 biopsies done on eight patients with dermatomyositis showed varying degrees of nodular myositis The myositis was severer in the acute cases and decreased in intensity as the disease became chronic Nodular myositis was seen in only six of 21 biopsy specimens from patients with lupus erythematosus The myositis was severe in only one patient, who also had rheumatic fever, and mild in the other patients, who also had arthralgia rheumatic pains or rheumatoid arthritis Nodular myositis was not seen in a single case of lupus erythematosus that was not associated with rheumatic fever, arthralgia, rheumatic pains or arthritis Nodular myositis was not seen in chronic or subacute lupus erythematosus Degenerative processes in muscles appeared in all except one patient with dermatomyositis, but in only six of 19 cases of lupus erythematosus Degenerative processes in muscles by themselves are of little assistance in diagnosis Twenty one sternal bone marrow examinations with special reference to L E cells were made in five cases of dermatomyositis, eight cases of acute disseminated lupus erythematosus and six cases of subacute lupus erythematosus L E cells were not found in the bone marrow of patients with dermatomyositis or subacute or chronic lupus erythematosus, and they were found in only half the patients with acute disseminated lupus erythematosus The L E cells are a valuable diagnostic aid, especially in cases of acute disseminated lupus erythematosus without cutaneous manifestation Bone marrow examinations and muscle biopsies should be an aid in making the differentiation between dermatomyositis and lupus erythematosus

Streptomycin in Granuloma Inguinale —Pariser and his associates present observations on 76 patients with granuloma inguinale who were treated with streptomycin The lesions of 80 per cent of their patients healed with a dosage of 18 Gm of streptomycin given orally in divided doses of 0 6 Gm every four hours over a five day period Treatment failures could be reduced to approximately 4 per cent by retreatment with 4 Gm per day over a period of 10 days Although the oral use of aureomycin and chloramphenicol may cause healing of lesions resistant to intensive therapy with streptomycin the experience of these authors with the drugs is too limited to permit one to draw conclusions

Chemosurgical Treatment of Melanoma —Mohs points out that in the treatment of epithelioma the "silent" extensions from the main mass of cancer can be traced and eradicated by means of multiple microscopically controlled excisions which characterize the chemosurgical method In the treatment of melanoma however, this microscopic control would seem to be of more limited value because often there is a discontinuous, embolic mode of spread into the peritumoral lymphatics and beyond The author analyzes results obtained with his chemosurgical method in 20 patients with melanoma who have been observed for five or more years or until death The primary melanoma was more than 3 cm in diameter in 10 of the patients, 12 of the patients had received surgical or radiation treatment before the chemosurgical method was applied, and 10 had palpable enlargement of the lymph nodes at the time chemosurgical treatment was instituted Seven of the 20 patients survived and were well for more than five years after treatment, one of them for more than 12 years Nine of the remaining 13 patients died as the result of metastases, the other four died of either undetermined causes, "stroke" or pneumonia These results compare favorably with those obtained by others using more radical methods The chemosurgical method completely removes cutaneous melanomas It is necessary to remove an additional zone of tissue after a melanoma free level has been reached because of the danger of satellite deposits in the surrounding lymphatics The width of this extra zone varies in proportion to the size and the malignancy of the melanoma The regional nodes are surgically dissected if enlarged or if the size and degree of malignancy of the primary lesion warrant a prophylactic dissection of nonpalpable nodes

Archives of Pathology, Chicago

50:137-258 (Aug) 1950

Hypertensive Cardiovascular Disease ("Malignant Hypertension') Changes in Canine Tissues Induced by Various Manipulations of Kidney, with Special Reference to Vascular and Myocardial Lesions E E Muirhead A Grollman and J Vanatta —p 137
*Crystalline Ester Cholesterol and Adult Cortical Renal Tumors T Leary —p 151
Evaluation of Choline in Prevention of Experimental Atherosclerosis Importance of Changes in Body Weight C Moses and G M Langabaugh —p 179
Thickness of Media of Thoracic Aorta in Relation to Age W E Wellman and J E Edwards —p 183
Coronary Artery Disease Comparison of Rates and Patterns of Development of Coronary Arteriosclerosis in Negro and White Races with Its Relation to Clinical Coronary Artery Disease J O Blache and F P Handler —p 189
Trichoma Tumor of Hair Anlage S A Wallace and B Halpert —p 199
Skeletal Changes in Severe Phosphorus Deficiency of Rat I Tibia, Metacarpal Bone, Costochondral Junction Caudal Vertebra R D Coleman H Becks F Van N Kohl and D H Copp —p 209
Changes Induced in Connective Tissue of Pubic Symphysis of Guinea Pig with Estrogen and Relaxin E Perl and H R Catchpole —p 233
Arteritis of Appendix J W Hall S C Sun and W Mackler —p 240

Crystalline Ester Cholesterol and Cortical Renal Tumors —In this extensive discussion on cholesterol and the renal cortex, Leary pays particular attention to the relation of crystalline ester cholesterol to the cortical renal tumors occurring in adults Miniature tumors were collected at the Mallory Institute of Pathology over a period of years Solitary growths, nodules appearing in small numbers and, particularly, kidneys showing large numbers of nodules were studied Evidence is presented that the crystalline ester cholesterol deposited in the

CURRENT MEDICAL LITERATURE

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

20:701-800 (Aug.) 1950

Attempts to Isolate Poliomyelitis Virus from Paralyzed Muscle of Patients During Acute Stage of Disease. C. W. Jungeblut and M. A. Stevens.—p. 701.
Experimental Urolithiasis: Calcium Oxalate Stone. T. J Domanski.—p. 707.
Mercury and Lead Storage in Human Tissues with Special Reference to Thrombocytopenic Purpura. E. M. Butt and D. G. Simonsen.—p. 716.
**Correlation of Clinical Features of Cirrhosis of Liver with Findings on Biopsy.* H. Popper, S. S. Waldstein and P. B. Szanto.—p. 724.
Artefacts in Liver Biopsies. T. C. Keller and H. F. Smetana.—p. 738.
*Acute Pancreatic Necrosis: Clinicopathologic Study. N. J. Roberts, A. H. Baggenstoss and M. W. Comfort.—p. 742.
Effect of Venous Compression on Certain Blood Factors. T. J Berry, E. Perkins and P. Jernstrom.—p. 765.

Biopsy in Cirrhosis of Liver.—Popper and co-workers correlated clinical and laboratory observations with various histopathological features, such as liver cell damage, coagulation necrosis, fatty metamorphosis, focal necrosis and leukocytic reactions, in 97 liver biopsy specimens, obtained from 70 patients with cirrhosis. Diffuse liver cell damage showed the best correlation with clinical and with biochemical activity. The other features showed less correlation, which, when observed, was best explained by the concomitant presence of liver cell damage. This suggests that liver cell damage is the most important factor in determining the clinical activity in cirrhosis. A series of hepatic tests was performed on all patients within 48 hours to seven days of the biopsy. Increased cephalin flocculation and thymol turbidity tests appeared best to indicate the presence of diffuse liver cell damage in cirrhosis. These were followed by serum albumin reduction and to a lesser degree by serum globulin elevation and reduction of albumin-globulin ratio. Patients with an alcoholic history revealed, in general, less liver cell damage and more fatty metamorphosis than those without such a history. Ascites coincided most with scarring and other phenomena associated with fibroplasia and inflammation in the portal triads and in the connective tissue trabeculae. The type of cirrhosis associated with jaundice failed to reveal specific morphological characteristics except for the presence of static bile pigment. The morphological analysis did not reveal a structural basis for the pronounced jaundice or for the intrahepatic interruption of the biliary flow in cirrhosis.

Acute Pancreatic Necrosis.—Roberts and co-workers analyzed the clinical records and postmortem observations in 25 fatal cases of acute pancreatic necrosis in 13 men and 12 women between the ages of 26 and 73 years. The average age of the patients was 51.9 years. Sixteen patients, 11 women and five men, were described as obese. A record of the past consumption of alcohol was available in 10 patients, two of whom admitted excessive drinking and two others moderate drinking. No common causative denominator was immediately apparent. Most impressive was the coincidence of proved disease of the biliary tract in 21 of the 23 patients in which a description of the gross appearance of the biliary tract was available. Eighteen of these 23 patients had biliary stones. The disease occurs in both sexes and is most frequent in middle life. It is especially common in the obese and in alcoholics and often is precipitated after a meal or an alcoholic debauch. Its onset is usually sudden with severe constant upper abdominal pain, often extending to the back. Ordinarily the pain persists for at least several hours and often is not relieved by the usual doses of narcotics. Nausea and vomiting commonly occur promptly. A subnormal to normal temperature, low pulse rate and normal blood pressure are noted initially in most instances. Shock may develop early, late or not at all. Moderate to pronounced epigastric tenderness with only slight to moderate rigidity is usual. Subsequent distention is common and jaundice frequent. Conclusive laboratory assistance may be obtained by the demonstration of elevated serum levels of amylase and lipase in almost all cases observed early. Albuminuria is noted in most patients; sugar levels up to 20 per cent have been noted. Diagnosis, formerly difficult, is possible in most cases as a result of increased knowledge and awareness of the disease, coupled with the substantiating laboratory procedures now available.

American Journal of Ophthalmology, Chicago

33:1187-1324 (Aug.) 1950

Diabetic Retinopathy. J. S. Friedenwald.—p. 1187.
New Procedure for Treatment of Adherent Leukomas Preceding Keratoplasty. L. Paufique.—p. 1200.
Epibulbar Tumor. J. E. Ash.—p. 1203.
Ewing's Tumor of Orbit: Report of 2 Cases. F. Harbert and G. L. Tabor Jr.—p. 1219.
Streptothrix as Cause of Follicular Conjunctivitis and Other Obscure Conjunctivitides. F. H. Theodore.—p. 1225.
*Effect of ACTH in Glaucoma. E. M. Blake, R. M. Fasanella and A. S. Wong.—p. 1231.
Sutured Contact Lenses for Contention of Graft in Keratoplasty. A. Fritz.—p. 1236.
Nondiabetic Lipemia Retinalis. J. J. Groom and C. W. Rucker.—p. 1238.
Effects of Nicrowave Diathermy on Eye: Experimental Study. L. Daily Jr., K. G. Wakim, J. F. Herrick and others.—p. 1241.
Toxoplasmosis: Diagnosis and Treatment. A. B. Sabin.—p. 1255.
Plastic Socket and Lid Reconstruction. C. P. Scarborough and P. H. Landers.—p. 1269.
Presbyopia: Comparative Observations of White and Negro Populations. L. L. Covell.—p. 1275.
Abducens Paralysis in Brucellosis: Report of 2 Cases. J. C. Yaskin and R. S. Boles.—p. 1277.
Effect of Eye Patch on Organisms of Conjunctival Sac. R. W. Linhart.—p. 1280.

Effect of ACTH in Glaucoma.—Blake and his associates state that pituitary adrenocorticotropic hormone (ACTH) had no appreciable effect on the intraocular pressure in their first two cases of primary glaucoma. In the third patient uveitis in one eye appeared to be developing into primary bilateral glaucoma. Here the acutely raised tension and inflammation responded promptly in the one eye. The fourth patient who had early uveitis with a secondary rise in tension experienced a remarkable clinical improvement within 48 hours, including a definite drop in tension. The fifth case was one of chronic primary glaucoma, which, after eight days of treatment, showed no significant drop in pressure. It would appear that pituitary adrenocorticotropic hormone had no demonstrable effect in the reduction of intraocular pressure in primary glaucoma. Since increased intraocular pressure accompanying anterior uveal disease showed a drop in tension and subsidence of the inflammatory process, it is suggested that, if pituitary adrenocorticotropic hormone becomes more readily available, it may be useful in the differentiation between primary and so-called secondary glaucoma.

American Journal of Psychotherapy, New York

4:405-588 (July) 1950 Partial Index

SYMPOSIUM ON PROBLEM OF MEDICAL AND LAY PSYCHOTHERAPY
- Medical View I Galdston—p 419
- Who Shall Practice Psychotherapy? R M Lindner—p 432

Why Patients Discontinue Treatment in Mental Hygiene Clinic F Dengrove and S B Kutash—p 457

Clinical Significance of Mosaic and Rorschach Methods L Zucker—p 473

Bipolarity in Diagnosis Through Art I Zierer—p 488

Archives of Dermatology and Syphilology, Chicago

62:181-350 (Aug) 1950

Lesions of Scalp in Certain Scaly Dermatoses Histologic Study C W Laymon—p 181

*Comparison of Muscle Biopsies and Bone Marrow Examinations in Dermatomyositis and Lupus Erythematosus J I Madden and I M Karon—p 192

Poikiloderma Vasculare Atrophicans Report of Case Due to Exposure to Cold J G Downing and I M Edelstein—p 206

Beryllium Window Radiations for Superficial Therapy A C Cipollaro—p 214

Absorption of Roentgen Rays with Use of Beryllium Window Tube M I Engman Jr, I P Weber and W G Ille—p 222

Outcome of Pregnancies of Women Treated with Aqueous Penicillin for Early Infectious Syphilis Prevention of Prenatal Syphilis H N Bundesen J Rodriguez, H C S Aron and B I Korman—p 250

Shielding of Skin Against Roentgen Radiation by Plastic Compounds J W Wilson—p 257

Dermatologic Aspects of Insect Repellents and Toxicants L Goldman—p 245

*Streptomycin Treatment of Granuloma Inguinale H Pariser, S Z Goldberg and G H Mitchell—p 261

Effect of Yeast Extract on Microsporum Audouini and Microsporum Canis K Loewenthal—p 265

*Chemosurgical Treatment of Melanoma Microscopically Controlled Method of Excision F F Mohs—p 269

Peculiar Deformity of Hands Occurring in Epidermolysis Bullosa M H Cohen and H H Hopkins—p 280

Treatment of Onychomycosis with Ammoniacal Silver Nitrate Solution A G Franks and A Sternberg—p 287

Therapeutic Value of Chloramphenicol in Group of Dermatoses of Established or Questionable Virus Etiology I G Beinhauer—p 290

Blood Vessels of Skin in Chronic Venous Insufficiency Clinical and Pathologic Study M H Kulwin and F A Hines Jr—p 293

Atypical Keratosis Pilaris F P Coombs and T Butterworth—p 305

Hypoallergenic Penicillin in Oil S W Simon and M D Feldman—p 314

Influence of Grenz Rays on Histamine Induced Manifestations G Bucky, F Blank and I H Distelheim—p 319

Dermatomyositis and Lupus Erythematosus—The difficulty encountered in differentiating acute disseminated lupus erythematosus from dermatomyositis prompted Madden and Karon to evaluate muscle biopsies done on patients with these diseases, and, because Hargraves found the so-called L E cell in bone marrow preparations from patients with acute disseminated lupus erythematosus, they also searched for such cells The authors compare and correlate observations made on 27 patients, eight of whom had dermatomyositis and 19 of whom had lupus erythematosus The 12 biopsies done on eight patients with dermatomyositis showed varying degrees of nodular myositis The myositis was severer in the acute cases and decreased in intensity as the disease became chronic Nodular myositis was seen in only six of 21 biopsy specimens from patients with lupus erythematosus The myositis was severe in only one patient, who also had rheumatic fever, and mild in the other patients who also had arthralgia, rheumatic pains or rheumatoid arthritis Nodular myositis was not seen in a single case of lupus erythematosus that was not associated with rheumatic fever, arthralgia, rheumatic pains or arthritis Nodular myositis was not seen in chronic or subacute lupus erythematosus Degenerative processes in muscles appeared in all except one patient with dermatomyositis, but in only six of 19 cases of lupus erythematosus Degenerative processes in muscles by themselves are of little assistance in diagnosis Twenty one sternal bone marrow examinations with special reference to L E cells were made in five cases of dermatomyositis, eight cases of acute disseminated lupus erythematosus and six cases of subacute lupus erythematosus L E cells were not found in the bone marrow of patients with dermatomyositis or subacute or chronic lupus erythematosus, and they were found in only half the patients with acute disseminated lupus erythematosus The L E cells are a valuable diagnostic aid, especially in cases of acute disseminated lupus erythematosus without cutaneous manifestation Bone marrow examinations and muscle biopsies should be an aid in making the differentiation between dermatomyositis and lupus erythematosus

Streptomycin in Granuloma Inguinale—Pariser and his associates present observations on 76 patients with granuloma inguinale who were treated with streptomycin The lesions of 80 per cent of their patients healed with a dosage of 18 Gm of streptomycin given orally in divided doses of 0 6 Gm every four hours over a five day period Treatment failures could be reduced to approximately 4 per cent by retreatment with 4 Gm per day over a period of 10 days Although the oral use of aureomycin and chloramphenicol may cause healing of lesions resistant to intensive therapy with streptomycin, the experience of these authors with the drugs is too limited to permit one to draw conclusions

Chemosurgical Treatment of Melanoma—Mohs points out that in the treatment of epithelioma the "silent" extensions from the main mass of cancer can be traced and eradicated by means of multiple microscopically controlled excisions which characterize the chemosurgical method In the treatment of melanoma however, this microscopic control would seem to be of more limited value because often there is a discontinuous embolic mode of spread into the peritumoral lymphatics and beyond The author analyzes results obtained with his chemosurgical method in 20 patients with melanoma who have been observed for five or more years or until death The primary melanoma was more than 3 cm in diameter in 10 of the patients, 12 of the patients had received surgical or radiation treatment before the chemosurgical method was applied and 10 had palpable enlargement of the lymph nodes at the time chemosurgical treatment was instituted Seven of the 20 patients survived and were well for more than five years after treatment, one of them for more than 12 years Nine of the remaining 13 patients died as the result of metastases, the other four died of either undetermined causes, "stroke' or pneumonia These results compare favorably with those obtained by others using more radical methods The chemosurgical method completely removes cutaneous melanomas It is necessary to remove an additional zone of tissue after a melanoma free level has been reached because of the danger of satellite deposits in the surrounding lymphatics The width of this extra zone varies in proportion to the size and the malignancy of the melanoma The regional nodes are surgically dissected if enlarged or if the size and degree of malignancy of the primary lesion warrant a prophylactic dissection of nonpalpable nodes

Archives of Pathology, Chicago

50:137-258 (Aug) 1950

Hypertensive Cardiovascular Disease ("Malignant Hypertension') Changes in Canine Tissues Induced by Various Manipulations of Kidney, with Special Reference to Vascular and Myocardial Lesions E L Muirhead, A Grollman and J Vanatta—p 137

*Crystalline Ester Cholesterol and Adult Cortical Renal Tumors T Leary—p 151

Evaluation of Choline in Prevention of Experimental Atherosclerosis Importance of Changes in Body Weight C Moses and G M Langabaugh—p 179

Thickness of Media of Thoracic Aorta in Relation to Age W E Wellman and J E Edwards—p 183

Coronary Artery Disease Comparison of Rates and Patterns of Development of Coronary Arteriosclerosis in Negro and White Races with Its Relation to Clinical Coronary Artery Disease J O Blache and F P Handler—p 189

Trichoma Tumor of Hair Anlage S A Wallace and B Halpert—p 199

Skeletal Changes in Severe Phosphorus Deficiency of Rat I Tibia, Metacarpal Bone, Costochondral Junction Caudal Vertebra R D Coleman H Becks I Van N Kohl and D H Copp—p 209

Changes Induced in Connective Tissue of Pubic Symphysis of Guinea Pig with Estrogen and Relaxin L Perl and H R Catchpole—p 233

Arteritis of Appendix J W Hall S C Sun and W Mackler—p 240

Crystalline Ester Cholesterol and Cortical Renal Tumors—In this extensive discussion on cholesterol and the renal cortex, Leary pays particular attention to the relation of crystalline ester cholesterol to the cortical renal tumors occurring in adults Miniature tumors were collected at the Mallory Institute of Pathology over a period of years Solitary growths, nodules appearing in small numbers and, particularly, kidneys showing large numbers of nodules were studied Evidence is presented that the crystalline ester cholesterol deposited in the epithelium of renal convoluted tubules in adults, particularly in those afflicted with nephrosclerosis, is the stimulating agent responsible for the growth of benign cortical adenomas in man. Removal of the crystalline ester cholesterol is followed by a cessation of the growth of such adenomas, which then revert to inactive tubular adenomas. It is generally accepted that adult renal cortical adenocarcinomas have their origin in benign adenomas. Recent experimental chemical studies support the thesis that cholesterol by itself or in combination with small amounts of a cocarcinogen is the cause of sarcoma induced in mice by the injection of cholesterol-rich extracts of human or animal tissue. The combined histochemical and chemical evidence leaves little doubt that cholesterol is intimately related to certain human and experimental tumors.

Archives of Surgery, Chicago

61:193-386 (Aug.) 1950

Surgical Treatment of Chronic Suppurative Hidradenitis. P. W. Greeley. —p. 193.
Surgery of Gallbladder: Study of Results of Surgical Treatment in Rock County, Wis. T. J. Snodgrass, W. A. Munn and T. H. Flarity. —p. 199.
Role of Tracheotomy in Postoperative Care of Patients Subjected to Esophagectomy. J. T. Reynolds, P. H. Holinger, A. H. Andrews Jr. and others.—p. 211.
Combined Abdominal and Right Thoracic Approach to Lesions of Esophagus. C. Mathewson Jr. and R. Cohn.—p. 229.
Partial Esophagogastrectomy in Treatment of Esophagogastric Varices. P. W. Schafer and C. F. Kittle.—p. 235.
Problems Associated with Surgery of Heart and Great Vessels: Technical Problems Encountered in Surgery for Congenital Abnormalities. E. H. Fell, B. M. Gasul and C. B. Davis Jr.—p. 244.
Id.: Anesthetic Problems in Children Undergoing Operations on Heart and Great Vessels. F. M. Grem.—p. 259.
*Surgical Treatment of Tuberculous Pericarditis. E. Holman —p. 266.
Splenectomy for Traumatic Rupture with Intra-Abdominal Hemorrhage: Report of 101 Cases. R. V. Byrne.—p. 273.
*Role of Stellate Block in Various Intracranial Pathologic States. H. C. Naffziger and J. E. Adams.—p. 286.
Intracranial Aneurysms. C. H. Shelden, R. H. Pudenz and L. E. Brannon.—p. 294.
Excision of Skin in Radical Mastectomy. H. D. Cogswell.—p. 305.
Technic for Radical Mastectomy. W. E. Leighton.—p. 312.
Effects of Sympathectomy on Cerebral Circulation of Hypertensive Patients. H. A. Shenkin, J. H. Hafkenschiel and S. S. Kety.—p. 319.
Irradiation Necrosis of Head of Femur. J. T. MacDougall, A. Gibson and T. H. Williams.—p. 325.
Physiologic Observations on Patient with External Pancreatic Fistula. J. M. Miller and M. Ginsberg.—p. 346.
Carcinoma of Ampulla of Vater of Minute Size: Unsuspected Cause of Obstructive Jaundice. L. H. Kyle, H. J. Sparling Jr. and H. Jeghers. —p. 357.
Relief of Pain in Chronic Relapsing Pancreatitis by Unilateral Sympathectomy. A. Hurwitz and J. Gurwitz.—p. 372.
Treatment of Fractures with Long-Standing Osteomyelitis: Results of Use of Tibial Sliding Graft. P. Wallace.—p. 379.

Surgical Treatment of Tuberculous Pericarditis.—Holman points out that tuberculous pericarditis poses the twofold problem of controlling infection and of correcting the mechanical interference with the flow of blood. He reviews four cases of tuberculous pericarditis cured or greatly improved by pericardectomy. The disease is characterized by a prolonged course exhibiting in the acute stage chills, sweats, fever, rapid pulse rate, dyspnea, increased sedimentation rate, leukocytosis, anemia, pericardial friction rub and pericardial effusion sufficient at times to produce compression of the heart and the superior and inferior venae cavae as shown by increased venous pressure, by fluoroscopic absence of ventricular pulsations and by a reduced voltage in the QRS complex and inverted T waves in the electrocardiogram. Such effusion may persist or may subside as shown by a reduction in the size of the cardiac shadow. In two cases this disappearance of pericardial effusion took place within three weeks after complete bed rest but was followed promptly by signs of cardiac compression due to contracture of the inflamed and thickened pericardium. Pericardiectomy should be considered at the time of pericardial effusion, particularly if compression of the heart and the superior and inferior venae cavae is present. In a very ill patient with pericardial effusion such decompression might be best effected by removal of the left sixth costal cartilage for evacuation and drainage of the pericardium, followed at a second stage, 10 to 20 days later, by median sternotomy and radical pericardiectomy. Despite the improvement following the first operation, the second operation should be performed without fail. Radical pericardiectomy in the four cases reviewed here resulted in apparent cure in three and in progressive improvement in one. Primary healing occurred in all operative areas, despite the presence of tubercle bacilli in the diseased pericardium. The beneficient influence of streptomycin and penicillin on the results is conceded.

Stellate Block in Intracranial Pathologic States.—According to Naffziger and Adams it is probable that cerebral vasospasm may either initiate or contribute to such neurological disorders as hemiplegia, aphasia and hemianopsia. Realizing this possibility, Leriche and Fontaine proposed interruption of the intracranial vascular sympathetic innervation by procaine hydrochloride block of the stellate ganglion. The improvement following stellate block in a patient with complete hemiplegia induced Naffziger and Adams to use this method in similar cases. They were reluctant to block the stellate ganglion when history or presence of blood in the cerebrospinal fluid indicated an acute cerebral hemorrhage, fearing that the bleeding might be augmented and the brain damage increased. In such cases they waited until bleeding (bloody cerebrospinal fluid) had subsided. An anterior approach to the region of the stellate ganglion was used in all instances. Two to 3 cc. of 1 per cent procaine hydrochloride was injected. The number and frequency of injections varied depending on the condition of the patient and the result obtained with the initial injection. One or two injections sufficed in many patients. Others required injection as often as three times daily for several days. Of the 155 patients with cerebrovascular accidents who were treated with stellate block, 91 made a complete clinical recovery, 37 made a partial recovery and in the remaining 27 the results were poor, in that they showed no improvement or died. Stellate block was employed also in 70 patients with acute neurologic deficits associated with trauma or intracranial operations. The results in these 70 patients without cerebrovascular disorders were good in 30, fair in 30 and poor in 10. The procedure has been extended to patients with neurological defects remaining as a result of prior cerebrovascular accidents. The authors observed improvement occurring as late as six years after the original vascular insult.

Arizona Medicine, Phoenix

7:1-64 (Aug.) 1950

Congenital Anteversion of Neck of Femur. R. S. Haines.—p. 19.
Diabetic Coma. E. A. Waskow.—p. 24.
*Use of Continuous Caudal or Spinal Anesthesia in Treatment of Eclampsia. R. B. Kennedy, L. Fill and R. R. Bates.—p. 27.

Continuous Caudal or Spinal Anesthesia in Treatment of Eclampsia.—Kennedy and his associates report the histories of four patients with eclamptogenic toxemia of pregnancy who were treated with continuous caudal and/or continuous spinal anesthesia supplemented by routine conservative medical management. In two of the cases the convulsive seizures occurred before delivery, while in the other two they occurred during the immediate postpartum period. One patient was treated by continuous caudal, one by continuous caudal later replaced by continuous spinal and two by continuous spinal anesthesia. The minimal length of time a patient was kept under continuous anesthesia was 13 hours, while the longest administration was 96 hours. Piperocaine hydrochloride was the anesthetic agent used in all cases except one, in which tetracaine hydrochloride was employed for a short time. The minimal caudal dose was 1,125 mg. and the maximal 3,525 mg.; the minimal dosage under continuous spinal was 622.5 mg. and the maximal 3,810 mg. Two patients responded with diuresis and alleviation of proteinuria within 12 hours after institution of therapy, while in the other two cases improvement was not definitely assured until 24 to 36 hours later. Three patients showed a definite decrease in hypertension during therapy; only one failed to show the drop in blood pressure shown by the others. Two patients were discharged with blood pressures slightly exceeding the arbitrary standards of 140/90. The authors used this treatment successfully in a large number of patients with preeclampsia and in many pregnant women with hypertensive cardiovascular disease. They do not wish to imply that this treatment will cure all eclamptic patients, but in their experience it is the best treatment available at the present time. They warn that this type of anesthesia is a powerful but dangerous therapeutic measure and should be used only by physicians thoroughly trained in its administration.

Arkansas Medical Society Journal, Fort Smith

47:55-70 (Aug.) 1950

Medical Ethics: Your Own Course in Curriculum. H. A. Kemp.—p. 55.
No Apologia. J. P. Sanders.—p. 59.

Bulletin New York Academy of Medicine, New York

26:583-636 (Sept.) 1950

Comparison of Tests of Thyroid Function. J. H. Means.—p. 583.
Thyrotropic Exophthalmos. R. L. Pfeiffer.—p. 592.
Diabetic Neuropathy. R. W. Rundles.—p. 598.
Advances in the Diagnosis of Bacterial Infections. G. Shwartzman.—p. 617.

Canadian Medical Association Journal, Montreal

63:103-210 (Aug.) 1950

Exfoliative Cytological Diagnosis. D. Magner.—p. 103.
Physiological Factors of Significance in Paediatric Anaesthesia. C. R. Stephen.—p. 109.
Primary or Idiopathic Pleurisy with Effusion. W. A. Oille.—p. 112.
Needle Biopsy of Liver. I. D. Maxwell, M. M. Baird and M. V. Rae.—p. 116.
*Rheumatoid Arthritis: Results of Treatment with Desoxycorticosterone Acetate and Ascorbic Acid (Arthrodox). W. Graham, T. E. Hunt and D. Mowat.—p. 121.
Flaxedil, New Curarizing Agent. F. A. Walton.—p. 123.
*Convulsions and Hemiplegia in Pertussis Prophylaxis. H. B. Grace.—p. 129.
Friedlander's Bacillus Meningitis. C. W. Hollard.—p. 131.
Early Symptomatology of Carcinoma of Lung. B. Winter.—p. 134.
Neurological Complications of Infectious Mononucleosis. J. L. Silversides and J. C. Richardson.—p. 138.
Pulmonary Calcification and Histoplasmin Sensitivity. P. Green.—p. 143.
Failure After Operations for Procidentia Uteri. N. M. Guiou.—p. 147.
Giant Follicular Hyperplasia of Rectum Showing Malignant Degeneration. D. J. Currie and J. C. Luke.—p. 150.
Adrenal Neuroblastoma. R. W. Boyd.—p. 153.
Multiple Myeloma. E. G. Brownell.—p. 157.
Hyperglycaemic and Glycogenolytic Factor of Pancreas. E. Lozinski.—p. 163.

Desoxycorticosterone Acetate and Ascorbic Acid in Rheumatoid Arthritis.—Graham, Hunt and Mowat point out that Lewin and Wassén reported that in a majority of patients with rheumatoid arthritis a dramatic decrease in pain and stiffness followed the parenteral administration of desoxycorticosterone acetate and ascorbic acid. Ten subsequent reports have given rise to controversy since five of them seemed to confirm the observations of Lewin and Wassén whereas the others, with the same technic employed, reported no significant response. Graham and his associates describe their observations on 37 patients with rheumatoid arthritis, 10 with ankylosing (Marie-Strümpell) spondylitis and three with acute gouty arthritis who were treated with intramuscular administration of desoxycorticosterone acetate and ascorbic acid combined. Treatment was continued for one to 14 days. In most of the patients no obvious change, subjective or objective, was noted. A few, however, described temporary, sometimes dramatic, relief from stiffness and pain, especially after the first injection. In view of the psychological factors involved, such temporary improvement must be interpreted with caution. Treatment with desoxycorticosterone acetate and ascorbic acid was found to have no effect on the activity or the progression of the diseases as shown by the degree of swelling, the erythrocyte sedimentation rate and serum protein fractions. The injection of desoxycorticosterone acetate and ascorbic acid did not have any effect on the total circulating eosinophil counts or glucose tolerance curves, such as are found after therapy with cortisone or pituitary adrenocorticotropic hormone.

Convulsions and Hemiplegia in Prophylaxis of Pertussis.—Grace describes two cases in which severe untoward reactions followed administration of multiple antigens for prophylactic immunization. The preparation used was a fluid form of diphtheria toxoid, pertussis vaccine and tetanus toxoid (combined). The dose given was 0.5 cc. which contained approximately 11,250,000,000 killed bacilli from strains in phase I Hemophilus pertussis, 15 L.F.D. of diphtheria toxoid and 5 L.F.D. of tetanus toxoid. The pertussis component of the preparation is considered responsible for the adverse effects produced. In the first case an explosive episode occurred with severe prolonged convulsive seizure and right-sided hemiplegia. Sequelae remain which are indicative of permanent cerebral damage. In the second case the reaction was less violent; complete recovery followed the convulsive seizure. The authors cite other reports of similar untoward effects occurring with pertussis preparations of various types alone or in combinations with other antigens and manufactured by different companies. They direct attention to the serious results which may occur when pertussis antigen is administered to a subject who is predisposed to the convulsive state.

Cancer Research, Chicago

10:461-522 (Aug.) 1950

Recent Studies on Corneal Metabolism and Growth: Review. J. S. Friedenwald.—p. 461.
Studies on Hodgkin's Syndrome: XI. Influence of Normal Serum and Hodgkin's Serum on Cellular Growth and Morphology in Tissue Culture. M. S. Reiman, I. R. Stern, M. Z. Ford and H. A. Hoster.—p. 467.
Virus-Induced Rabbit Papilloma-to-Carcinoma Sequence: III. Immunological Tests for Papilloma Virus in Cottontail Carcinomas. J. T. Syverton, E. B. Wells, J. Koomen Jr. and others.—p. 474.
Significance of Anterior Chamber in Tumor Transplantation: I. Transplantation of Mouse Neuroblastoma C1300 to Homologous Hosts. E. J. Eichwald, R. G. Evans and G. B. Browning.—p. 483.
Studies on Xanthine Oxidase During Carcinogenesis by p-Dimethylaminoazobenzene. W. W. Westerfeld, D. A. Richert and M. F. Hilfinger.—p. 486.
Application of Seibert Tryptophane-Acid Reaction to Serum of Malignancy. C. Riegel and P. R. Beatty.—p. 495.
Catalase Studies on Normal and Cancerous Rats. D. Appleman, E. R. Skavinski and A. M. Stein.—p. 498.
Studies of Excretion of Diazotizable Material After Feeding 2-Acetylaminofluorene to Rats. H. P. Morris and B. B. Westfall.—p. 506.
Inhibition of Nucleic Acid Synthesis by Folic Acid Antagonists. H. E. Skipper, J. H. Mitchell Jr. and L. L. Bennett Jr.—p. 510.
Relative Susceptibility of Various Organs to Tumor Transplantation. R. P. de Long and D. R. Coman.—p. 513.
Titration of Milk Agent Virus in Milk and Lactating Mammary Gland Cells. R. A. Huseby, C. P. Barnum and J. J. Bittner.—p. 516.

Connecticut State Medical Journal, Hartford

14:687-806 (Aug.) 1950

*Blue Cross Protects the People—Who Protects Blue Cross? P. R. Hawley.—p. 687.
Need for Standardization of Breast Cancer Records. R. Katzenstein, R. J. Kerin and A. J. Ryan.—p. 692.
Unsuspected Foreign Body of Bronchus—Case Report. F. M. Bannon.—p. 696.
Clinical Value of Electrocardiography. M. Backer.—p. 699.
Lipectomy for Abdominal Fat. C. L. Larkin.—p. 706.
Retrocaval Ureter—Case Report. C. E. Jacobson Jr.—p. 709.
Diabetics Live Long, but Can Live Longer and More Efficiently. E. P. Joslin.—p. 713.

Who Protects Blue Cross?—Howley feels that the medical profession has been slow to realize that in its hands, almost exclusively, rests the success of voluntary prepayment of the costs of medical care. Blue Cross has been caught between the upper and nether millstones of spiraling costs and increasing utilization. As the utilization rate rises, the subscribers must pay more, and the day may come when Blue Cross will be too expensive for poor people; when that day comes, there will be compulsory health insurance. Hawley pleads that Blue Cross be protected against being priced out of the market. He suggests among other factors elimination of services which are purely luxuries and which do not contribute significantly to the recovery of patients. Hospital administrators and pathologists must bring to the attention of the staff as a whole the unnecessary services that are being ordered for patients. The author deplores the curious defect in public morality which makes it no crime to defraud an insurance company. Many persons who would be horrified at the thought of stealing one penny from a fellow man have not the slightest compunction about taking money under false pretenses from an insurance company. Patients may demand hospitalization as a luxury rather than as a necessity. On the excuse that the home is being renovated or that the cook will not return for several days, the patient may ask to remain in the hospital beyond the time that hospital care is necessary. It is not easy for the physician to pit his own sense of right and wrong against a patient's capricious desire. It should be made easier for him by Blue Cross members' awareness that each day of unnecessary utilization of their benefits must be paid for by increased cost of their own protection as well as that of all other Blue Cross members.

Diseases of Chest, Chicago

18:93-184 (Aug) 1950

Use of PAS in Treatment of Draining Tuberculous Empyemata M R Lichtenstein and P Alfano —p 93
Endoscopic Collection of Neoplastic Cells and Tubercle Bacilli from Bronchi (Description of New Irrigation Suction Collector and Anatomical Physiological and Pathologic Factors Involved) A A Carabelli —p 98
Significance of Unstable Tuberculin Reactions I S Neiman —p 111
Pulmonary Diseases Service Rehabilitation Program of Veterans Administration Hospital J D Davis and C W Anderson —p 119
*Shrunken Right Middle Lobe with Reference to So Called Middle Lobe Syndrome E H Rubin and M Rubin —p 127
Experimental Massive Pulmonary Collapse W W Coulter Jr —p 146
Benign Thymic Cyst Case Report J A Crellin, T F Pugh and O H Jinton Jr —p 154
Metastatic Malignant Tumors to Bronchus Found in Bronchial Biopsy and Secretions I M Reingold and B E Konwaler —p 162
Autopsy Incidence of Pulmonary Embolism in Tuberculosis T J Moran —p 171

Shrunken Right Middle Lobe —The Rubins report on 16 patients with a shrunken right middle lobe, a condition referred to by some as the "middle lobe syndrome" The right middle lobe is most subject to collapse This is due to the fact that its bronchus is especially vulnerable to compression and invasion by bronchopulmonary lymph nodes, the latter draining the lower as well as the middle lobe It is possible that middle lobe shrinkage occurs as a result of pressure exerted on bronchi by cicatrizing nontuberculous lymph nodes but the analysis of the histories and roentgen observations in these 16 cases suggest that in each instance a preexisting tuberculous focus probably in regional lymph nodes led to the involvement of the middle lobe The symptoms produced by the shrunken middle lobe are usually like those of bronchitis but there are intercurrent episodes of pulmonary infections or hemoptysis Usually the course is mild The true cause may be overlooked or the symptoms erroneously ascribed to pleuropericardial adhesions or interlobar pleurisy The diagnosis can be made by roentgenography in the posteroanterior right lateral and lordotic projections The shrunken lobe appears as a triangular or roughly quadrilateral density at the root of the lung Tomography is helpful Bronchoscopy is essential in the determination as to whether one is dealing with bronchiogenic neoplasm Bronchography is necessary for establishment of the presence of bronchiectasis Treatment consists of excision of the involved lobe unless the age and condition of the patient contraindicate surgery

Florida Medical Association Journal, Jacksonville

37:1-60 (July) 1950 Partial Index

Shock Therapy Comes of Age W H McConnell —p 19
General Practitioner's Care of Prostate A F Turner Jr —p 27
Multiple Small Bowel Intussusception N Arenson —p 31

37:61-120 (Aug) 1950

Venous Thrombosis A Ochsner M E DeBakey and P T DeCamp —p 79
Treatment of Pelvic Malignant Disease E Novak —p 83
*Visual and Retinal Complications of Diabetes Mellitus W J Knauer —p 88
*Granuloma of Larynx Following Intratracheal Anesthesia M Wattles —p 91
6n Propyl Thiouracil in Thyrotoxicosis Complicating Pregnancy M S Saslaw and H Kraff —p 94

Visual Complications of Diabetes Mellitus —Knauer says that, as the life of diabetic patients is prolonged, diabetes mellitus may top the list of causes of loss of vision At least 40 per cent of patients who have had diabetes mellitus for 15 years will have some form of retinopathy The percentage rises to 85 for the group who have had this disease for 25 years or more Ophthalmologists should record the time at which diabetes mellitus was first diagnosed in cases of diabetic retinopathy The patients should be told to report visual disturbances The diabetic changes in the retina, which are usually bilateral, occur in the area between the upper and lower temporal vessels and the region surrounding the optic nerve head Numerous so called small round deeply situated hemorrhages or hemorrhagic spots occur, and, in addition, there are usually small exudates Treatment with rutin seems to improve the capillary fragility but not the diabetic retinal lesions The hope that early and physiological control of the diabetes may avert later hopeless and disastrous complications is gaining ground By close cooperation between the internist and the ophthalmologist it may be possible to evolve a method whereby retinal complications can be avoided and blindness from diabetes eliminated The author stresses that patients who have had diabetes mellitus for 10 years or more should undergo ocular examination at regular and relatively frequent intervals and the fundus of the eye should be carefully examined

Granuloma of Larynx Following Intratracheal Anesthesia —Wattles believes that granuloma of the larynx following intratracheal anesthesia is more frequent than the few reported cases seem to indicate Of the 22 cases that had been recorded to the end of September 1949 more than three fourths (17) were in women The favored site appears to be the posterior portion of the vocal cord or on or near the vocal process of the arytenoid cartilage, where the lesion is subject to trauma in the use of the voice Chronic nonspecific inflammation characterizes the condition There may be polypoid masses composed of new granulation tissue richly supplied with blood vessels and covered with inflammatory exudate or small, hard, fibrous nodules composed of inflammatory fibrous tissue with few blood vessels, the whole covered with epithelium Granulation tissue may surround the cartilage of the vocal process, the cartilage may be found in the floor of the ulcer or may be loose in the granuloma The cause is obviously mechanical The intratracheal tube, by pressure necrosis or trauma, produces an ulcer of the larynx The chief symptom is hoarseness Other complaints are discomfort in the larynx, pain extending to the ear and occasionally hemoptysis and chronic cough Dyspnea and cyanosis may make an emergency operation necessary Treatment consists of removal of the granuloma Recurrence of the granuloma may require repeated excision The lesion frequently occurs bilaterally, as in the case which the author observed Every effort should be made to avoid this complication through gentleness during intubation, careful examination of the larynx preoperatively and postoperatively and appropriate treatment of abrasions Surgeons should be aware of this possible complication, and, when a patient, particularly a woman, complains of hoarseness loss of voice, laryngeal pain or discomfort in the throat after tracheal intubation, the larynx should be examined with this sequela in mind

Gastroenterology, Baltimore

15 581-814 (Aug) 1950

Psychosomatic Relationships in Digestive System J A Bargen —p 581
Review of Gastric Surgery for 1948 S I Marshall and E S Phillips Jr —p 592
Studies in Pancreatic Function II Statistical Study of Pancreatic Secretion Following Secretin in Patients Without Pancreatic Disease D A Dreiling and F Hollander —p 620
Flocculation Tests in Differential Diagnosis of Jaundice H Ducci —p 628
Infectious Hepatitis (Homologous Serum Type) in Drug Addicts F Steigmann S Hymann and R Goldbloom —p 642
Hookworm Infection in Veterans with Some Notes on Strongyloides Stercoralis and Other Parasites H C Conn —p 647
Occurrence of Proctologic Disorders in Infancy and Childhood Statistical Review of 2700 Cases S Schapiro —p 653
Changes in Gastroscopic Appearance of Human Stomach Following Intravenous Tetra Ethyl Ammonium Chloride A Hendin A L Hahn and W A Knight Jr —p 667
Red Goggle Examination of Superficial Venous Collaterals Simple Clinical Substitute for Infrared Photograph A P Ingegno and B F Merrill —p 670
Gallstone Ileus V R Forester —p 679
Carcinoma of Gallbladder A W Ulin, I L Lichtenstein, A Garritano and S M Fischer —p 684
Lesser Peritoneal Sac Perforation Complicating Benign Peptic Ulcer II Clinical and Roentgenologic Study M Feldman —p 689
Id III Report of Two Cases M Feldman and I Weinberg —p 696
Serum Amylase Response to Morphine, Mecholyl and Secretin as Test of Pancreatic Function J O Burke, K Plummer and S Bradford —p 699
Histological Investigation of Healing of Acute Gastric Ulceration in Cat G S Gunter —p 708
Effect of Banthine on Gastric Secretion in Man and Experimental Animals C A Smith E R Woodward C W Janes and L R Dragstedt —p 718
Comparison of Effectiveness of Banthine and Atropine in Depressing Gastric Acid Secretion in Man and Dog F B Benjamin C E Rosiere and M I Grossman —p 727
*Effect of Atropine on Certain Gastric Functions in Patients with Duodenal Ulcer B F Gill and J S Jessup —p 736

Effect of Atropine on Gastric Functions —Gill and Jessup describe studies made on six hospitalized male patients with uncomplicated duodenal ulcer in order to determine the effects on certain functions of the stomach of atropine sulfate given by mouth. A dye dilution technic was employed to calculate the rates of gastric secretion and pyloric evacuation. Definite diminution in free and total acid production rate of gastric secretion and rate of pyloric evacuation was observed while the patients were receiving atropine. These studies corroborate the generally held concept that the parasympathetic nervous system, through the vagus nerves, stimulates secretion and motility of the human stomach and that atropine is an effective inhibitor of this action. Results with atropine are similar to the immediate results of vagotomy. The large doses of atropine used in this study caused blurring of vision and dryness of the mouth. The fact that a dose of 2.4 mg. of atropine sulfate given every four hours produced no greater decrease in acid or motility than a dose of 1.2 mg. suggests that atropine in even smaller doses might be sufficient to obtain the desired results. Caution is advisable in the use of atropine in older patients with cardiovascular disease or increased intraocular tension.

Georgia Medical Association Journal, Atlanta

39:313-358 (Aug.) 1950

Today's Indications for Cesarean Section. M. M. Schneider.—p. 313.
Diagnosis of Obstructive Lesions of Gastrointestinal Tract of Newborn Infant. M. H. Roberts.—p. 320.
Diagnosis and Early Management of Acute Poliomyelitis. M. L. Davis.—p. 327.
Rehabilitation of the Crippled Child. H. E. Gillette.—p. 332.
Treatment of Flat Feet in Children. J. H. Kite and W. W. Lovell.—p. 3[illegible]5.

Journal of Clinical Investigation, Cincinnati

29:973-1112 (Aug.) 1950

*Salt Retention in Cirrhosis of Liver. A. V. N. Goodyer, A. S. Relman, F. D. Lawrason and F. H. Epstein.—p. 973.
Comparative Absorption of Vitamin A from Water Miscible and Oily Preparation by Normal Human Adults and Patients with Steatorrhea. B. C. Barnes, E. L. Wollaeger and H. L. Mason.—p. 982.
Transfer of Radioactive Mercury Across Membrane Produced by Application of Cantharides to Skin of Man. F. J. Kelly, A. H. Svedberg and V. C. Harp Jr.—p. 985.
Metabolic and Cardiovascular Studies of Prolonged Intravenous Administration of Human Serum Albumin. N. S. Gimbel, C. Riegel and W. W. L. Glenn.—p. 998.
Cerebral Circulation and Metabolism in Hyperthyroidism. P. Scheinberg.—p. 1010.
Studies in Para-Aminohippuric Acid Synthesis in Human: Its Application as Liver Function Test. W. P. Deiss and P. P. Cohen.—p. 1014.
Mechanism of Glycosuric Diuresis in Diabetic Man. W. A. Brodsky, S. Rapoport and C. D. West.—p. 1021.
Concentration of Precipitable Iodine in Serum. D. M. Kydd, E. B. Mann and J. P. Peters.—p. 1033.
Plasma and Red Cell Iron Turnover in Normal Subjects and in Patients Having Various Hematopoietic Disorders. R. L. Huff, T. G. Hennessy, R. E. Austin and others.—p. 1041.
Effect of Alcohol on Renal Excretion of Water and Electrolyte. M. B. Strauss, J. D. Rosenbaum and W. P. Nelson III.—p. 1053.
Studies on Proteolytic Enzyme System of Blood. II. Fibrinolysokinase Activators for Profibrinolysin. J. H. Lewis and J. H. Ferguson.—p. 1059.
Correlative Study of Cardiac Output and Hepatic Circulation in Hyperthyroidism. J. D. Myers, E. S. Brannon and B. C. Holland.—p. 1069.
*Iron Metabolism: Hematopoiesis Following Phlebotomy. Iron as Limiting Factor. S. Finch, D. Haskins and C. A. Finch.—p. 1078.
Mucolytic Enzyme Systems. X. Serum Hyaluronidase Inhibitor in Liver Disease. G. G. Snively and D. Glick.—p. 1087.
Position of Oxygen Dissociation Curve of Blood in Normal Children and Adults. M. Morse, D. E. Cassels and M. Holder.—p. 1091.
Position of Oxygen Dissociation Curve of Blood in Cyanotic Congenital Heart Disease. M. Morse, D. E. Cassels and M. Holder.—p. 1098.
Effect of Salicylates and Adrenocorticotropic Hormone upon Miscible Pool of Uric Acid in Gout. J. D. Benedict, P. H. Forsham, M. Roche and others.—p. 1104.

Salt Retention in Cirrhosis of Liver.—Goodyer and his associates infused 500 cc. of a 5 per cent solution of sodium chloride into normal adults and into patients with cirrhosis, most of whom had normal glomerular filtration rates and renal plasma flows. All subjects were deprived of food and water for 12 hours before the infusion and for six to eight hours thereafter. The concentrations of serum sodium rose about 10 milliequivalents per liter during the infusions in all experiments and remained elevated during the subsequent period of water deprivation, during which time the normal subjects and two patients with cirrhosis without ascites or edema excreted 12 to 54 per cent of the administered sodium. The concentration of sodium in their urine increased to as much as 267 milliequivalents per liter and the rate of sodium excretion increased greatly. In contrast during the same period, the cirrhotic patients with edema and/or ascites excreted 0.2 to 10 per cent of the administered sodium. The concentration of sodium in their urine increased to a maximum of 102 milliequivalents per liter, and the rate of sodium excretion increased only minimally. Potassium excretion increased in most patients coincidentally with the sodium uresis. The authors regard the results of these tests as evidence of a specific impairment of the renal mechanism for the excretion of sodium in patients in whom hepatic cirrhosis is accompanied with edema and/or ascites. It appears that dietary sodium is retained by the kidneys of these patients as a result of the increased tubular reabsorption, the stimulus for which remains obscure.

Iron Metabolism: Hematopoiesis Following Phlebotomy.—In the studies reported by Finch and his associates, dogs and men were repeatedly subjected to phlebotomy over a period of several months. The bleeding produced anemia and thereby stimulated hematopoiesis. The removal of 3,500 cc. of blood in normal subjects over a period of seven weeks resulted in, first, an increased rate of blood formation and later, as iron depletion became manifest, a retardation of hematopoiesis. While on a normal diet without supplemental iron therapy, the subjects recovered from the anemia in two months. The serum iron level remained depressed, suggesting a deficiency in iron stores over a longer period. Hematopoiesis was severely curtailed in persons with depleted stores of iron. In patients with excessive tissue iron including those with hemochromatosis, blood production continued at an accelerated rate. Weekly phlebotomies of 500 cc. could be continued for several months without the development of significant anemia. From data obtained on phlebotomized patients with polycythemia vera, the maximal amount of iron available from the diet for hemoglobin production seems to be 2 to 4 mg. per day. This would contribute but little to the total iron mobilized under the conditions of the experiment. These observations indicate that the rate of blood regeneration following phlebotomy is dependent chiefly on available body stores of iron.

Journal of Immunology, Baltimore

65:143-296 (Aug.) 1950

Combined Active-Passive Reimmunization Against Tetanus in Previously Immunized Individuals: Experimental and Clinical Evidence. J. J. Miller Jr. and M. L. Ryan.—p. 143.
Antigenic Relationships of Certain Viruses Capable of Producing Encephalitis in Mice As Shown by Complement Fixation Tests. T. P. Hughes and A. Perlowagora.—p. 155.
Antigenic Relationships of Native Antigens of Species of Brucella. S. J. Silverman and S. S. Elberg.—p. 163.
New Method for Large Scale Production of High Titer Botulinum Formol Toxoid Types C and D. M. Sterne and L. M. Wentzel.—p. 175.
Action of Aureomycin and Other Chemotherapeutic Agents in Experimental Brucellosis. A. I. Braude and W. W. Spink.—p. 185.
Interchangeability of Complement Components of Different Animal Species. II. In Hemolysis of Sheep Erythrocytes Sensitized with Rabbit Amboceptor. C. E. Rice and C. N. Crowson.—p. 201.
*Q Fever in California. II. Recovery of Coxiella Burneti from Naturally Infected Air-Borne Dust. P. D. DeLay, E. H. Lennette and K. B. DeOme.—p. 211.
Differences in Toxicity of S and R Variants of Shigella Dysenteriae. Chloe Tal.—p. 221.
Comparison of Influenza Complement Fixation Antigens Derived from Allantoic Fluids and Membranes. M. W. Kirber and W. Henle.—p. 229.
Evaluation of Agglutination of Erythrocytes Sensitized by Newcastle Disease Virus (NDV) as Serologic Test in Infectious Mononucleosis. L. Kilham.—p. 245.
Comparison of Physicochemical Measurements of Hyaluronidase and of Neutralizing Antibodies Thereto. T. N. Harris and S. Harris.—p. 255.
Egg White Inhibitor of Influenza Virus Hemagglutination. III. Stability in Relation to Preparation of Standard of Activity. F. Lanni, Y. T. Lanni and J. W. Beard.—p. 269.
Hemagglutinating Substances for Human Cells in Various Egyptian Plants. W. C. Boyd.—p. 281.
Electron Microscopy of Fowl Pox Virus Within Chorioallantoic Membrane. C. Morgan and R. W. G. Wyckoff.—p. 285.

Q Fever: Recovery of Coxiella Burnetii from Dust.—Coxiella burnetii, the causal organism of Q fever, was found in California in the milk of infected dairy cattle, sheep and goats. Many human cases of Q fever occurring in California could be tracted neither to the use of raw milk nor to contact with dairy cattle, sheep or goats. It is possible that infection may arise from air-borne dust originating in environments contaminated with the body secretions or excreta of infected livestock. This report presents data on initial experiments conducted to ascertain the presence of Coxiella burnetii in dust from such environments The authors recovered Coxiella burnetii from dust-laden air on a dairy in southern California and from dust-laden air on a sheep ranch in northern California Thus it has been demonstrated that Coxiella burnetii may be present in the dust laden air on premises harboring infected domestic livestock The possibility thus exists that human (or animal) infection may be acquired by exposure to contaminated air Air borne dissemination of the rickettsiae might offer an explanation for some of the outbreaks and sporadic cases of Q fever which have occurred in the absence of direct contact with infected livestock

Journal of International College of Surgeons, Chicago

14:143 256 (Aug) 1950

Morbidity After Prostatectomy Urethrocystographic Study M L Brondy and S A Robins —p 143
Clinical and Roentgenologic Manifestations of Obstruction of Small Bowel C J Hunt —p 159
Kuntscher Nail Technic for Fractures of Femoral Shaft J E M Thomson —p 166
Management of Urinary Incontinence in Women W J Reich, J L Wilkey, M J Nechtow and H E Silverman —p 188
Prevention of Some Post Gastrectomy Difficulties by New Gastrectomy Technic (Pantaloon Anastomosis) M E Steinberg —p 194
Primary Carcinoma of Duodenum Report of Successful Whipple Operation R Goldsmith S Levine and J Zaslow —p 205
Unicornuate Uterus Associated with Agenesis of Kidney Report of 2 Cases A J Daro H A Gollin and E G Nora Jr —p 211
Study on Cause of Toxemia of Pregnancy M Maguire —p 215
Management of Acute Cholecystitis A Behrend —p 2[illegible]

Journal of Investigative Dermatology, Baltimore

15:69-156 (Aug) 1950

Thorium X Investigations Histological Study of Thorium X Application on Rabbit Skin H C Fishman —p 71
Cutaneous Sarcoidosis as Expression of Syphilis Report and Discussion of Case E T Bernstein and M Leider —p 75
Relationship of Host and Virus in Molluscum Contagiosum G Rake and H Blank —p 81
Etiology of Poral Closure Experimental Study of Miliaria Rubra, Bullous Impetigo and Related Diseases of Skin I Historical Review of Causation of Miliaria J P O Brien —p 95
Id II Role of Staphylococcal Infection in Miliaria Rubra and Bullous Impetigo J P O Brien —p 102
Id III Pathologic Effect of Excessive Soaping on Pores of Skin J P O Brien —p 134
Id IV Effect of Lipoid Solvents on Pores of Skin Final Discussion of Poral Closure J P O Brien —p 141
Comments to ' The Etiology of Poral Closure, an Experimental Study of Miliaria Rubra, Bullous Impetigo and Related Diseases of Skin By John P O Brien, M D ' M B Sulzberger and F Herrmann —p 153

Journal Pharmacology & Exper. Therap., Baltimore

99:395-502 (Aug) [Part I] 1950 **Partial Index**

Cardiac Action of Helleborus Glycosides and Their Aglycones K K Chen, F G Henderson and R C Anderson —p 395
Quantitative Study of Blood Pressure Response to Cardiovascular Drugs and Their Antagonists G Chen and D Russell —p 401
Physiological Disposition of Dicumarol in Man M Weiner, S Shapiro, J Axelrod and others —p 409
Mechanism of Apnea Following Intravenous Injection of Various Antihistaminic Compounds, Its Relation to Their Chemical Structure D M Aviado Jr R G Pontius and T H Li —p 425
Pharmacology of New Autonomic Ganglion Blocking Agent, 2,6 Dimethyl 1,1 Diethyl Piperidinium Bromide (SC 1950) D I Cook W E Hambourger and R G Bianchi —p 435
Potentiation of Antimalarial Activity of Sulfadiazine by 2 4 Diamino 5 Aryloxypyrimidines J Greenberg and E M Richeson —p 444
Toxicity, Antipyretic and Analgesic Studies on 39 Compounds Including Aspirin Phenacetin and 27 Derivatives of Carbazole and Tetrahydrocarbazole E Eagle and A J Carlson — p 450
Choleretic Potencies of Some Synthetic Compounds M J Gunter K S Kim D I Magee and others —p 465

99:227 398 [Aug] (Part II) 1950

Functional Characteristics of Renal Transport Mechanisms K H Beyer —p 227
Recent Contributions to Pharmacology of Bis(2 Haloethyl) Amines and Sulfides F S Philips —p 281
Carbon Monoxide J L Lilienthal Jr —p 324
*Addiction to Analgesics and Barbiturates H Isbell and H F Fraser —p 355

Addiction to Analgesics and Barbiturates —Isbell and Fraser review the literature of the last decade on addiction to analgesic drugs They found that every drug in the morphine series which is an effective analgesic is also capable of producing addiction and that the likelihood of producing addiction generally parellels the analgesic potencies of the morphine drugs Addiction to meperidine hydrochloride is fairly common, and physical dependence can be developed in persons who have never been previously addicted to any other analgesic drug The spinal cord, and probably other parts of the central nervous system, are involved in physical dependence on morphine This dependence is not entirely due to changes in the autonomic nervous system Addiction to morphine and other analgesics causes a general slowing up of the electroencephalogram No permanent anatomic damage is done to the central nervous system, nor is there permanent impairment of intelligence Treatment of morphine addiction involves withdrawal of the drug followed by a long period of rehabilitative and psychiatric therapy Addiction to barbiturates is far more dangerous and harmful than is addiction to morphine The clinical picture of chronic barbiturate intoxication resembles that of chronic intoxication with alcohol and is characterized by impairment of mental ability, impairment of emotional control, psychic regression and dangerous neurological symptoms Withdrawal of barbiturates is followed by a severe type of abstinence syndrome which is characterized by convulsions and delirium Treatment of chronic barbiturate intoxication is the same as for morphine addiction

Journal of Thoracic Surgery, St. Louis

20:169-334 (Aug) 1950 **Partial Index**

Primary Intrathoracic Neurogenic Tumors J T Godwin, W L Watson J I Pool and others —p 169
*Tumors of Thymus W D Seybold, J R McDonald, O T Clagett and C A Good —p 195
Syphilis of Esophagus T R Hudson and J R Head —p 216
*Cavernostomy for Residual Cavity After Thoracoplasty Early Closure of Cavernostomy Sinuses Under Streptomycin Protection J D Murphy and F R Koontz —p 222
Diaphragmatic Hernia H W Meyer —p 235
Acute Putrid Abscess of Lung VI Late Results of Surgical Treatment A S W Touroff, R A Nabatoff and H Neuhof —p 266
Transthoracic, Thoracoabdominal Portacaval Anastomosis V P Satinsky, H P Redondo Ramirez and L Gilbert — p 272
Disturbances in Acid Base Balance During Ether Anesthesia with Special Reference to Changes Occurring During Thoracic Surgery F H Taylor and A Roos —p 289
Continuous Spinal Anesthesia for Thoracoplasty Second Report G Willauer, J J Gartland Jr and J J DeTuerk —p 296
Some Aspects of Cavity Behavior in Pulmonary Tuberculosis G A P Hurley —p 325

Tumors of the Thymus.—Seybold and co-workers report 45 patients 28 women and 17 men between the ages of 16 and 68, with thymoma Tissue was made available for study by surgical removal or by necropsy Thymoma was defined as a specific tumor of the thymus characterized by the presence of both thymic epithelial and thymocytic cells in varying proportions The thymoma was associated with myasthenia gravis in 34 patients (75 6 per cent), 22 of whom were aged over 40 *Eleven patients (25 per cent)* had no evidence of myasthenia gravis at the time they were operated on and subsequently had no symptoms of this disease Patients with myasthenia gravis or suspected of having it should be examined by roentgenoscopy and by posteroanterior and lateral roentgenography. Characteristically, thymomas occur in the anterior mediastinum in a position anterior to the aortic arch and the base of the heart Some of the tumors contained calcium in quantities sufficient to be apparent roentgenologically Peculiar features which would permit a pathological diagnosis on the basis of roentgenologic observations were lacking Three fourths of the thymomas had a distinct fibrous capsule, while 10 had broken through their capsule to invade adjacent structures and two had spread to pleural surfaces as nodular implants of the tumor There was no evidence of embolic, lymphogenous or hematogenous metastasis Surgical treatment was not attempted in four patients because of a poor general condition Thirty-one of the remaining 41 patients underwent complete removal of the tumor and 10 underwent incomplete removal or biopsy Myasthenia gravis was the cause of death of three of the five patients who died after operation There was no evidence of recurrence of the tumor in any of the patients whose tumor was removed completely The tumor itself was usually fatal in patients with ineradicable lesions Intensive roentgen therapy for ineradicable tumors seemed to benefit some patients Exploratory thoracotomy is indicated for all patients with mediastinal tumors whose general condition will permit, because there is no basis clinically or roentgenologically for the accurate pathological diagnosis of these tumors

Cavernostomy for Residual Cavity.—Murphy and Koontz performed cavernostomy on 23 patients with pulmonary tuberculosis and residual post-thoracoplasty cavities. Cavernostomy was carried out in two stages. Regenerated ribs and muscle bundles overlying the cavity were excised, the parietal pleura exposed and as large an extrapleural space as possible developed in the first stage. Ten to 14 days later, as large an area of the cavity as possible was unroofed by the electrocautery knife or, if the large vessels were threatened, by sharp dissection and a gauze pack placed into the cavity and left there for four days. It was then removed and the sinus packed daily with gauze moistened with an antiseptic solution. After a period varying from three to five months the drainage usually became thin and scanty. The sinus tract narrowed and epithelialized. Closure was attempted if three successive cultures of both the sputum and drainage material were negative and planigrams indicated eradication of the cavity. One gram of streptomycin in two divided doses, 0.5 Gm. each, was administered daily for one week preoperatively and two weeks postoperatively. Sixteen of the 23 patients had the resultant sinus tract closed by a muscle plastic operation, with streptomycin used as an adjunct. Closure was accomplished in 13 of these, who were followed for periods varying from one to two years. They had a negative sputum. Seven patients still have a draining sinus. Three of these were recent cases, in which closure will ultimately be effected. The remaining three were poorly selected cases in which closure could not be accomplished. The residual cavity was definitely eradicated, as revealed by planigraphic studies in 12 of the 16 patients whose sinuses were closed. Three of the remainder had planigraphic roentgenograms consistent with bronchiectasis in the former cavitary area. Two of these had a consistently negative sputum nearly two years after closure. One definite recurrence of sinus and cavity required lobectomy. Cavernostomy with streptomycin as an adjunct offers a satisfactory form of treatment for patients with residual cavities who are not suitable risks for resection.

Maine Medical Association Journal, Portland

41:309-356 (Aug.) 1950

Dicumarol Treatment of Myocardial Infarction, Threatened or Actual. R. S. Martin and E. H. Drake.—p. 310.
Improvement in Care of Newborn, Résumé. A. A. S. Whittier.—p. 313.
Ectopic Pregnancy. C. E. Dunham.—p. 315.
Cystectomy and Uretero-Intestinal Anastomosis for Cancer of Bladder. D. F. Marshall and L. A. Asali.—p. 318.
Transthoracic Nephrectomy for Metastatic Osteogenic Sarcoma of Kidney. D. F. Marshall and E. H. Drake.—p. 320.
Bronchiogenic Carcinoma: Present Concepts as to Diagnosis and Treatment. E. H. Drake.—p. 323.
Rupture of Musculotendinous Cuff of Shoulder. E. G. Asherman. —p. 327.
Use of Prefrontal Lobotomy in Treating Intractable Pain with Review of Literature. E. W. Skwarok and G. L. Maltby.—p. 329.
*Familial Polyposis of Colon. F. B. Clark and J. M. Parker.—p. 331.
The 1949 Poliomyelitis Epidemic. E. M. Cook Jr., T. Anton and E. S. Sherwood.—p. 337.

Familial Polyposis of Colon.—Clark and Parker report the occurrence of polyposis of colon in one family. The mother died of cancer of the colon at 41 years of age. No history concerning her siblings or parents was obtainable. She gave birth to 10 children, three having polyposis of the colon and one having died from cancer of the colon at 34 years of age. The three children of the latter, aged 17, 16 and 14, had polyposis of the colon. It is a disease characterized by a high incidence of malignant degeneration at an early age. The diagnosis is best established on the basis of a familial history and repeated, painstaking examination of the large bowel. The treatment is surgical extirpation of the entire large bowel. In adults treatment should be based on the presumption that malignant degeneration is imminent, making total colectomy necessary. Terminal ileostomy and removal of the colon to the lower sigmoid in one stage may often be feasible in a young patient who is a good operative risk. This may be followed by an abdominal perineal resection of the rectosigmoid. In rare instances where there is no disease in the rectosigmoid, preservation of this segment and anastomosis with the terminal ileum is practicable. The authors believe that, when the disease is sufficiently limited to the rectosigmoid, ileosigmoidostomy or ileoproctoscopy followed by fulguration of the polyps in the remaining rectosigmoid is not rational treatment. Polyps recur rapidly in areas that have been previously fulgurated and are frequently so numerous that fulguration is not practical. Malignant degeneration may occur and advance rapidly. The treatment of this disease in adolescence is fraught with hazards of nutritional deficiencies incident to an ileostomy. It may be possible to predict the age at which malignant degeneration will occur within wide limits on the basis of duration of the disease, the observed size and number of the polyps and the age at which malignant degeneration has occurred in antecedents or siblings. Careful observation and postponement of surgical treatment is justifiable if these factors indicate that malignant degeneration will not occur until after maturity.

Minnesota Medicine, St. Paul

33:753-856 (Aug.) 1950

Better Rural Transfusion Program. A. H. Borgerson.—p. 773.
Psychological Medicine in General Medicine Setting. R. M. Magraw. —p. 776.
The 1949 Cancer Statistical Study: Minnesota Department of Health. N. O. Pearce and D. S. Fleming.—p. 782.
*Infant Methemoglobinemia in Minnesota Due to Nitrates in Well Water. A. B. Rosenfield and R. Huston.—p. 787.
Pituitary Adrenocorticotropic Hormone (ACTH) in Asthma. J. S. Blumenthal.—p. 797.
Renal Tumors. H. Fisketti.—p. 799.

Methemoglobinemia Due to Nitrates.—According to Rosenfield and Huston, methemoglobinemia due to nitrates in well water is widespread in certain rural regions of the United States and Canada. In Minnesota 146 cases of methemoglobinemia from this cause, including 14 deaths, have been reported. Dry and evaporated milk formulas as well as diluted cow's milk formulas, which require large amounts of water as diluent, are most dangerous for infants. Since no infants who were breast-fed developed methemoglobinemia, this seems to be another argument in favor of breast feeding, especially in rural areas. Data are presented on water supplies suspected of being implicated in cases of infant methemoglobinemia in Minnesota. In all but two of these cases, the nitrate nitrogen content of the water was in excess of 20 parts per million. Periodic sampling over a one year period indicated that the nitrate concentration of a well remains fairly constant. Reconstruction of two wells failed to show, as some workers thought, that good well construction for a depth of 10 feet would exclude nitrates. Nitrates seem to occur more frequently in shallow wells (75 feet or less), than in deep wells. No method was found by which nitrates could be removed from water. None of the cases of methemoglobinemia in Minnesota occurred from the use of water containing less than 30 parts per million of nitrate nitrogen (NO_3N). However, 10 parts per million has been accepted as the point above which the water should be viewed with suspicion, because of the possibility of a dangerous level being reached through other factors such as boiling.

New England Journal of Medicine, Boston

243:205-240 (Aug. 10) 1950

Family Studies in Preventive Pediatrics. J. C. Spence.—p. 205.
Psychiatric Factors in Essential Hypertension: II. Follow-Up Study of 74 Cases. W. I. Tucker.—p. 211.
Intestinal Lipodystrophy (Whipple's Disease): Report of Case. W. S. Reveno.—p. 216.
Liquor Adulterated with Lye as Cause of Dysphagia and Stricture of Esophagus. U. K. Kiviranta.—p. 220.
Vitamin B_{12} and Pernicious Anemia (Concluded). M. B. Strauss.—p. 222.

243:241-280 (Aug. 17) 1950

Anomalies of Gastrointestinal Tract: Review of Literature and Report of Two Unusual Cases. R. B. Miller and A. O. Hampton.—p. 241.
*Therapeutic Experiences with Subacute Bacterial Endocarditis with Special Reference to Failures. D. Littmann and R. S. Schaaf.—p. 248.
*Febrile Thrombopenic Purpura with Hemolytic Anemia and Platelet Thrombosis. P. T. Goldenberg, J. E. Thayer and L. P. Hastings. —p. 252.
Hypertension. D. Loofbourow and R. S. Palmer.—p. 257.

Subacute Bacterial Endocarditis.—Littmann and Schaaf compare therapeutic experiences in subacute bacterial endocarditis from 1947 to 1949 with those for the preceding three years. The adequately treated failures, numbering 23 cases, were separately compared with the 52 recoveries. Early recognition and adequate antibiotic therapy were important in obtaining cures and limiting permanent structural damage Most deaths (17 of 23) occurred as a consequence of irreversible cardiac, renal or cerebral changes, despite sterilization of the blood stream Infection was present terminally in only six cases, and four of these were considered to be due to truly resistant organisms The nutritional state of the patients was found to be of prognostic value In approximately half the failures the patients were poorly nourished, and only 6 per cent of the cured patients were so designated Uremia and congestive failure were ominous events during the course of subacute bacterial endocarditis and commonly foreshadowed an unsuccessful termination Patients with the most serious heart disease fared the least well There was a relatively high incidence of congenitally bicuspid aortic valves in those who died Although more resistant to therapy, subacute bacterial endocarditis was found to be less frequent (by almost 50 per cent) in recent than in former years The reduction in total numbers was thought to be due in part to the currently widespread and probably justified use of antibiotics in patients with valvular heart disease for diagnoses other than bacterial endocarditis

Thrombopenic Purpura—A clinical syndrome characterized by fever, a rapidly progressing anemia mild icterus, thrombopenia, central nervous system manifestations and death in a relatively short time was first described by Moschcowitz in 1925 Since that time a limited number of cases that seemed to fit this picture clinically and pathologically have appeared in the literature The outstanding features at necropsy were numerous petechial hemorrhages of the heart, kidneys liver and brain, which microscopic examination revealed to be due to platelet thrombi As yet, this peculiar sequence of events has not been explained but in all likelihood it is initiated by a spontaneous deposition of the blood platelets, owing either to an upset in the coagulating mechanism of the blood or to a preceding capillary and arteriolar injury The authors describe the case of a young woman, aged 23, who had this type of disorder and in whom psychiatric manifestations were so prominent that she was at first believed to have a major psychosis and was placed in a mental institution No effective treatment has so far been found for this disease

New Orleans Medical and Surgical Journal

103:51-100 (Aug) 1950

Assurance as to Advantages and Safety of Radioactive Iodine Treatment of Hyperthyroidism S Hertz—p 51
Myocarditis M D Hargrove, W M Hall, W M Allums and T H Gandy—p 63
Malingering N J Bender—p 71
Prevention of Deafness E G Walls—p 74
*Streptomycin Therapy for Childhood Tularemia H B Levy, C H Webb and J D Wilkinson—p 78
Studies of Diets of Pregnant Women in Mississippi II Diet Patterns J H Ferguson and A G Keaton—p 81
Notes on Medical History of the Panama Canal R E Mitchell Jr—p 87

Streptomycin for Childhood Tularemia—According to Levy and his associates, 48 children with tularemia were treated at the Charity Hospital of Shreveport, La, during the period May 1943 through July 1949 Twenty-four children were treated with streptomycin The average total dose administered to a patient was 8 37 Gm, given for an average duration of 7 46 days, later dosage averaged 1 Gm daily for five to six days (125 mg at three hour intervals) This is in excess of the dose recommended by Foshay, who suggests 0 5 Gm daily for two days followed by 0 25 Gm daily for four days or, as an alternative course, 0 5 Gm daily for six days There were no instances of toxicity or sensitivity, despite the relatively large doses used at first, with the lower dose and shorter course now advocated, this danger will be lessened even more The rapid response to streptomycin observed in every child in this series proves the efficacy of this antibiotic against Pasteurella tularense Since the diagnosis of tularemia in childhood may be extremely difficult, especially in those cases in which an adequate history is lacking, there is justification for inclusion of a therapeutic trial with streptomycin for every severely ill child who fails to respond to other treatment

New York State Journal of Medicine, New York

50:1871-1982 (Aug 15) 1950

Treatment of Acne Vulgaris H H Bauckus—p 1917
*Seborrheic Dermatitis Supplemental Treatment with Vitamin B_{12} G C Andrews, C F Post and A N Domonkos—p 1921
Impact of Psychiatry on Therapy in Dermatology H Sharlit—p 1926
Further Experiments on Prolonging Local Anesthesia with Insoluble Anesthetic Bases S Monash and A Guiducci—p 1929
Control of Tinea Capitis A C Cipollaro and A Brodey—p 1931
N Ethyl O Crotono Toluide (Eurax) as Antipruritic S M Peck and F J Michelfelder—p 1934
Treatment of Localized (Pretibial) Myxedema with Hyaluronidase D Rosman—p 1939
Failure of Undecylenic Acid to Cure Psoriasis S C Atkinson Jr and G M Lewis—p 1943
Pneumoperitoneum Versus Pneumothorax J S Edlin and S Bassin—p 1947
Chronic Biliary Disease in General Practice J A Porcello—p 1956
Treatment of Backaches by Infiltration of Anesthetic Oils P Lahvis—p 1959
Application of Epithelial Grafts to Oral and Other Facial Cavities J E Sheehan and W A Swanker—p 1963

Vitamin B_{12} in Seborrheic Dermatitis.—Andrews and his associates used vitamin B_{12} in treatment of 101 patients with dermatological disorders They were prompted to use this preparation because of the beneficial effects obtained with crude liver extract and vitamin B complex in metabolic and nutritional deficiency states While many patients with seborrheic dermatitis have a mild, usually normocytic or hypochromic anemia, the response of the skin disease could not be judged from the red blood cell count, hemoglobin, hematocrit studies or reticulocyte count The vitamin was administered by intramuscular injection Local treatment was not neglected Patients with secondary infections of the seborrheic areas were treated with sulfonamides and penicillin Improvement usually manifests itself after two or three injections Many of these patients have no recurrences A mild recurrence usually can be treated satisfactorily with a few additional vitamin B_{12} injections, and recurrences have been prevented entirely by a maintenance dose of 15 or 30 micrograms of the vitamin given intramuscularly every two or three weeks Where other metabolic, endocrine and nutritional factors are implicated and appropriately treated recurrences will not appear Of 37 patients with seborrheic dermatitis who were studied thoroughly, 16 were cured, 16 improved, 3 only slightly improved and 2 were worse The authors conclude that these results are superior to those that can be obtained by local treatment alone They believe that this is essentially a nutritional disease Pityrosporum ovale, other cryptococci, staphylococci and streptococci are probably saprophytes or secondary invaders They account for many of the inflammatory features of the disease

Northwest Medicine, Seattle

49:499-566 (Aug) 1950

Sterility R J Crossen—p 521
Lower Nephron Nephrosis R L Cutter—p 526
Esophageal Electrocardiogram R F Foster and R H Thayer—p 530

49:567-650 (Sept) 1950

Nerve Blocks as Aid in Diagnosis and Therapy of Disease J J Bonica—p 593
Neurologic Syndrome About Face and Head J T Robson—p 596
Dr D S Maynard Pioneer Physician of Seattle M W Prosch—p 598
Some Current Medical Aspects of Thyroid Disease M J Goodman—p 600
Some Surgical Aspects of Thyroid Disease J M Guiss—p 602
Tumors of Thyroid Gland W L Lehman—p 604

Oklahoma State Medical Assn. Jour., Oklahoma City

43:351-396 (Aug) 1950

Oklahoma's Future Role in Cancer Program of United States S Binkley—p 353
Developments in Treatment of Macrocytic Hyperchromic Anemias Report of Case of Pernicious Anemia with Sub Acute Combined Degeneration Treated with Vitamin B_{12} V Sundgren—p 356
Medical and Hospital Insurance Is the Answer J P Cox—p 358
Effectiveness of Methylcellulose in Gastrointestinal Disturbances V. H Musick—p 360
Practical Precautions During Labor B D Faris—p 365

43:397-440 (Sept) 1950

The Crippled Lung J W. Gale—p 400
Indications for and Results of Keratoplasty C A Royer—p 405
Differential Diagnosis of Red Eye A N Lemoine Jr—p 407
Goniotomy in Congenital Glaucoma E N Robertson—p 409

Pennsylvania Medical Journal, Harrisburg

53:785-928 (Aug) 1950

Appraisal of Some Analgesic Agents and Methods E M Papper —p 801
Reconstruction of Common Bile Duct I S Ravdin —p 807
Recent Advances in Surgical Treatment of Carcinoma of Esophagus Discussion of Cervical Esophagogastrostomy F F Allbritten Jr and J H Gibbon Jr —p 811
Toxemias of Pregnancy J J Kocyan —p 817

Plastic and Reconstructive Surgery, Baltimore

6:1-96 (July) 1950 Partial Index

Surgical Treatment of Bifid Nose J P Webster and E G Deming —p 1
One Stage Surgical Repair of Gastrochisis (Omphalocele) by Cutis Graft Technic J E Kearns and B G Clarke —p 41
Layer Resection of Cavernous Hemangioma of Face Followed by Plastic Restoration M Gonzalez Ulloa —p 46
Total Pharyngoncoplasty R Farina —p 58
Medial Cleft of Lower Lip and Mandible Case Report A D Davis —p 62
Lateral Facial Clefts H M Blackfield and N J Wilde —p 68

Public Health Reports, Washington, D. C.

65:1039-1074 (Aug 18) 1950

Bactericidal Efficiency of Quarternary Ammonium Compounds C. T. Butterfield L Wattie and C W Chambers —p 1039
Haplomycosis in Montana Rabbits, Rodents, and Carnivores W L Jellison —p 1057

65:1075-1110 (Aug 25) 1950

Two Surveys of Methods Used by Public Health Laboratories for Examination of Stool Specimens for Salmonellae, Shigellae, and Protozoa O Felsenfeld —p 1075
Role of Morbidity Reporting and Case Registers in Cancer Control S J Cutler —p 1084

65:1111-1146 (Sept 1) 1950

Studies of Pulmonary Findings and Antigen Sensitivity Among Student Nurses VI Geographic Differences in Sensitivity to Tuberculin as Evidence of Nonspecific Allergy C E Palmer, S H Ferebee and O S Petersen —p 1111
*Geographic Distribution of Pulmonary Calcification Among University Students in Ohio J A Prior, J W Wilce and W Palchanis —p 1132

Pulmonary Calcification in Students—This study by Prior and his associates is based on the records of 4 829 students who entered Ohio State University in the fall of 1946 and 1948 Preliminary histoplasmin and tuberculin skin tests were required, and a satisfactory roentgenogram of the chest taken at the time of admission had to be available The group was further limited to lifetime residents of a given county The distribution of cases of pulmonary calcification in Ohio followed a definite geographic pattern which closely parallels the geographic distribution of histoplasmin reactors but does not correspond to the distribution of tuberculin reactors The incidence of tuberculin reactors tends to be higher in the metropolitan areas and lower in rural sections The incidence of both pulmonary calcification and histoplasmin reactors tends to be higher in the rural sections than in urban areas and also shows a definite geographic pattern Although many cases of calcification are undoubtedly due to tuberculosis, these facts indicate that most pulmonary calcification in Ohio and other Middle Western States is probably the result of a benign, widespread form of histoplasmosis or an antigenically related agent or agents

65:1147-1174 (Sept 8) 1950

*Relapse Following Apparent Arrest of Leprosy by Sulfone Therapy. P T Erickson —p 1147

65:1175-1201 (Sept 15) 1950

Availability of Fluorine in Sodium Fluoride vs Sodium Fluosilicate F J McClure —p 1175
Use of Chick Embryo for Isolation of Brucella Multiplication of Organism in Yolk Sac and Selection of Embryo Age Optimal for Isolation from Blood K Gay and S R Damon —p 1187

Relapse After Sulfone Therapy in Leprosy.—Erickson reports the recent discovery at Carville of the reactivation of leprosy in six patients in whom it was supposedly arrested by sulfone treatment Three of these cases, in which there was reappearance of leprosy bacilli in the skin without other manifestations, were classed as subclinical relapses In the remainder, there were, in addition, unquestionable leprous skin lesions or a true clinical relapse The disease was arrested by sulfone drugs in 77 patients who had active disease when treatment was begun Only 33 of these patients were kept under observation with routine clinical and laboratory examinations All had the lepromatous type of leprosy The duration of follow-up varied from six months to five years Among the 33 patients followed, 22 received glucosulfone sodium or sulfoxone sodium in smaller doses, either continuously or interruptedly after arrest of the disease Eleven patients received no antileprotic remedy after the disease became inactive Six relapses occurred among the 33 patients True clinical relapses, of which there were three, occurred only in the group that received no treatment after arrest of the disease These relapses occurred two to three years after the arrest Subclinical relapses occurred in both groups, two in the group not treated after arrest and one in the group treated The latter patient, however, had received a relatively small amount of sulfoxone sodium before the lesion became arrested The incidence of relapse seems to be lower if sulfone treatments are continued after inactivation of the leprosy

Rhode Island Medical Journal, Providence

33:333 388 (July) 1950

Diverticulitis and Cancer of Colon J J Morton —p 347
Industrial Medicine and the Private Practitioner J J Poutas —p 350
Problems of General Practice and Their Solutions C E Millard —p 354

Southern Surgeon, Atlanta, Ga.

16·729 836 (Aug) 1950

*Treatment of Tuberculous Psoas Abscess M J Hoover Jr —p 729
Postoperative Adhesions Case Report W L Peple Jr —p 737
Satisfactory Method for Dressing Severe Contusion Lacerated Abrasion Wounds of Face P N Pastore —p 744
Streptomycin in Treatment of Granuloma Inguinale of Cervix Uteri and Vulva R H Hoge and A M Salzberg —p 746
Some Electrolyte Considerations in Field of Surgery R A Neubauer, R R Porter and R W Frelick —p 754
Pulmonary Blebs and Bullae G A Welchons and J R Massie Jr —p 768
Multiple Metastasizing Carcinoids of Ileum with Simultaneous Papillary Adenomas of Colon Complicated by Intussusception and Gangrene Case Report with Operation and Recovery C L Coleman and M Markowitz —p 777
Osteoma of Cranial Vault and Base Three Cases Illustrating Two Varieties J M Meredith —p 785
Ewing s Tumor of Vertebrae L K Carter and J W Compton —p 796
Hemangioendothelioma Review of Literature with Report of Two Cases Q J Legg and W M Fitch —p 803
Comparative Study of Effects of Parasympathetico Mimetic Drugs on Urinary Bladder A I Dodson and D R Gilbert —p 812
Surgical Management of Ureteropelvic Obstruction A I Dodson and D Gilbert —p 816

Treatment of Tuberculous Psoas Abscess—According to Hoover, the tuberculous abscess is one of the serious complications of tuberculosis of the spine This article concerns the treatment of the psoas abscess, which results from the burrowing of the detritus along the fascia of the iliopsoas muscle Because of its superficial manifestation, this abscess often requires differentiation from the various retroperitoneal abscesses and the iliac fossae abscesses of pyogenic origin Another problem arising from the tendency of the psoas abscess to become superficial is pressure necrosis of the skin, which may lead to a spontaneous rupture and mixed infection Aspiration of the abscess with a small needle was the method of choice before the introduction of streptomycin Surgical incision was feared because of the danger of a mixed infection and of the resultant draining sinus tract Psoas abscesses usually point in Petit's triangle, in the groin or in the thigh region The incision should be made with strict aseptic technic in a sound area of skin a suitable distance from the "pointing spot" The contents are removed, the cavity is flushed with isotonic sodium chloride solution, and streptomycin solution is instilled Streptomycin may also be given intramuscularly, but when this is done, sufficient levels may not be reached in the abscess cavity because of the poor blood supply of the tuberculous tissue The author describes several methods of surgical drainage and local use of streptomycin in the psoas cavity The instillation of streptomycin solution into the cavity, followed by closure in layers of the incision, was the method used at Johns Hopkins Hospital The immediate results were dramatic when surgical drainage was used in conjunction with streptomycin applied locally

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

34:457-516 (Aug.) 1950

The Water-Drinking Test. W. Leydhecker.—p. 457.

Permeability of Blood-Aqueous Barrier to Fluorescein During Water-Drinking Test in Glaucomatous Eyes. W. Leydhecker.—p. 480.

Arcuate Lens Opacities of Mongolism and Cataracts of Similar Appearance. R. F. Lowe.—p. 484.

Trabecula in Chronic Simple Glaucoma, with Special Reference to Gonioscopic Appearance of Blood in Canal of Schlemm. H. E. Hobbs.—p. 489.

Significance of Conjunctival Aneurysms in Diabetics. C. McCulloch and T. J. Pashby.—p. 495.

Intra-Ocular Involvement in Case of Xanthomatous Biliary Cirrhosis. N. Lewis.—p. 506.

Case of Watering Eye Due to Pterygium. F. J. Damato.—p. 509.

Appliances—Non-Magnetic Foreign-Body Extractor. H B. Stallard. —p. 511.

Dark Glasses. F. A. Williamson-Noble.—p. 513.

British Medical Journal, London

2:471-534 (Aug. 26) 1950

Methods of Education. J. A. Lauwerys.—p. 471.

Art of Lecturing. G. P. Meredith.—p. 475.

Methods and Men in the Teaching of Clinical Medicine. H. Cohen. —p. 478.

Training of Clinical Teachers. R. D. Lawrence.—p. 481.

Clinical Evaluation of Effects of Drugs on Medical Students as a Teaching Method. A. Wilson, G. S. Crockett, A. N. Exton-Smith and H. Steinberg.—p. 484.

Mechanical Aids to Instruction. R. Ollerenshaw.—p. 488.

A G.P. on His Clinical Training. D. M. Johnson.—p. 493.

Some Comments on Medical Education in Great Britain by a London Medical Student.—p. 496.

2:535-560 (Sept. 2) 1950

Effects of Hypervitaminosis A on Foetal Mouse Bones Cultivated in Vitro. H. B. Fell and E. Mellanby.—p. 535.

*Respiratory Studies in Paralytic Poliomyelitis. R. B. Bourdillon, E. Davies-Jones, F. D. Stott and L. M. Taylor.—p. 539.

Poisoning by Organic Phosphorus Insecticides. P. L. Bidstrup.—p. 548.

Food Poisoning in Sheffield in 1949. E. L. Millar and M. Pownall. —p. 551.

Thrombocytopenic Purpura Due to Quinidine. G. Moodie.—p. 553.

Ollier's Disease: Dyschondroplasia. S. G. Nardell.—p. 555.

Lysivane Therapy for Parkinsonism. H. Palmer and D. J. A. Gallagher. —p. 558.

Relative Incidence of Gastric and Duodenal Ulcers. E. M. Brooke. —p. 560.

Respiratory Studies in Paralytic Poliomyelitis.—The observations reported by Bourdillon and his associates were made during the 1949 epidemic of poliomyelitis. Numerous measurements of tidal air were made with a spirometer on patients and on healthy subjects in Both and Drinker respirators and on patients after respirator treatment for poliomyelitis. Among the subjects studied were nine patients for whom respirator treatment was considered essential. Five of these were too ill for experimental tests and died without having had any measurements of tidal air. The authors give data on the four surviving respirator patients and of the healthy subjects. The measurements showed a wide range of variation from day to day in most cases. The authors believe that in the treatment of poliomyelitis with respiratory involvement there is need for measurements of vital capacity and tidal air, unless frequent measurement of blood oxygen and carbon dioxide are practicable. Early measurements of vital capacity are suggested in order to detect the first signs of respiratory involvement, with a view to resting the muscles concerned by prompt use of a respirator. The tidal air measurements are indicated as a rough guide to the correct setting of respirator pressures, to avoid underventilation or overventilation. The potential dangers of hyperventilation are discussed, and measurements are given showing the ease with which they are obtained in respirators. The authors describe tests on the use of the prone position in respirators and stress the importance of using this position, especially in bulbar cases. They suggest improvements in the Both respirator, such as provision for slower speeds and reduction in the angle of slope and in the thickness of the front panel.

Edinburgh Medical Journal

67:225-260 (June) 1950

Acid Secretion of the Stomach. C. F. W. Illingworth.—p. 225.

Large Gastric Ulcer. A. W. Branwood.—p. 234.

Obesity. A. P. Meiklejohn.—p. 243.

Case of Fat Embolism in Early Childhood. H. G. Howell Richards. —p. 252.

Bronchial Cancer as a Cause of Heart Block. C. K. Robertson and J. T. R. Rusell.—p. 257.

Journal of Clinical Pathology, London

3:191-300 (Aug.) 1950. Partial Index

Meningeal Tumours: Review. D. S. Russell.—p. 191.

Giant Cell Granuloma Associated with Lesions Resembling Polyarteritis Nodosa. G. H. Howells and I. Friedmann.—p. 220.

Bone Marrow in Hutchinson's Syndrome. A. Piney, J. Mallarmé and M. S. Ross.—p. 230.

*Complement Fixation Test for Herpes Simplex Infections. J. A. Dudgeon.—p. 239.

Fractionation of Serum Proteins Using Sodium Sulphate. N. H. Martin, R. Morris and M. Smith.—p. 266.

Renal Threshold for Bilirubin. H. E. Vickers.—p. 271.

Nature of Tissue Fluid in Oedema of Toxaemia of Pregnancy. C. L. Mukherjee and A. D. T. Govan.—p. 274.

Complement Fixation Test for Herpes Simplex.—According to Dudgeon the serologic diagnosis of virus infections depends for the most part on neutralization and complement fixation tests. Both have been described in herpes simplex infections. The neutralization test is used almost exclusively at present, owing to the conflicting results obtained by the complement fixation. The author attempted to prepare a more satisfactory antigen from the developing chick embryo, as was done with other viruses. He reports on a preparation of a chorioallantoic membrane antigen and its use in the diagnosis of herpes simplex infections. Antigens prepared from the chick embryo have several advantages over antigens prepared from animal and, in particular, brain tissue. They are easy to prepare, they have a high virus content and are bacteriologically sterile and the risk of nonspecific results is reduced. At the same time control antigens from uninfected tissue are easily prepared. The chorioallantoic membrane was used in one case as the source of antigen in preference to the amniotic and allantoic fluids, which, although they showed positive fixation, were seldom as constant in titer and on occasions were anticomplementary. The interpretation of any complement fixation reaction depends to a great extent on the specificity of the reaction. The more sensitive and the more specific the test can be made, the greater is its value. This quality of specificity is largely dependent on the antigen itself. In the present investigation nonspecific results were almost entirely eliminated by (1) the use of the chorioallantoic membrane antigen, (2) the preparation of hyperimmune serums with homologous tissue and (3) inactivation of the serums at 62 C. for 15 minutes. The test appeared to be of value as an alternative diagnostic method in herpes simplex infections, in particular when a large number of serums have to be examined. It may also be useful in following the course of antibody production in cases of recurrent herpes infections.

Journal of Laryngology and Otology, London

64:375-454 (July) 1950

Clinical Detection of Auditory Recruitment. P. Denes and R. F. Naunton.—p. 375.

*Rubella Congenital Inner-Ear Deafness. B. Hiller.—p. 399.

Studies on Sensory Epithelium of Labyrinthine Crista Ampullaris in Fishes. T. Vilstrup.—p. 420.

Rubella Congenital Inner Ear Deafness.—Hiller reviews the results of examination of 42 children with congenital inner ear deafness, the mothers of some of whom had had rubella during the Australian rubella epidemics of 1937-1940. The children have now reached the age at which they are able to offer full cooperation for examination of their hearing.

The deafness in 32 cases was due to rubella occurring in the mother in the early months of pregnancy; the other 10 are classed as nonrubella inner ear deafness cases. The degrees of deafness and the types of audiometric curves of various groups of children were analyzed. The average degree of deafness in the rubella-deaf group is less than that in the nonrubella cases. The audiograms of the rubella-deaf subjects show a great diversity of patterns. In general, low tones are less affected than high tones, but any downward trend in the curve of the audiogram is less steep than in typical inner ear deafness. The incidence and severity of rubella deafness and also the incidence of accompanying rubella retinitis appear to be directly dependent on the severity of the maternal rubella infection. Analysis of supposed nonrubella deafness made the authors believe that some of these cases may have resulted from maternal infection with rubella during early pregnancy. They also suggest that cases of congenital inner ear deafness with typical audiometric curves are probably hereditary in origin, while those with atypical graphs may be the result of antenatal infection, such as rubella, in the mother.

Journal of Tropical Medicine and Hygiene, London

53:167-192 (Aug.) 1950

Attempts to Cultivate Rabies in Cell-Free Medium. R. Kirk, M. A. Haseeb and A. T. Davis.—p. 167.
*Ascorbic-Acid (Vitamin-C) Deficiency in the Tropics. E. Stransky, D. F. Davis-Lawas and C. Vincente.—p. 170.
Experiment in Hydrocyanic Acid Gas Fumigation as Control Measure Against Plague. J. I. Roberts.—p. 175.

Vitamin C Deficiency in the Tropics.—According to Stransky and his associates nutritional problems are becoming more important in the tropics because millions of persons are going to the cities and are shifting from agriculture to mining, industry, commerce and clerical work. People living in large centers of population in the tropics have no means for preservation of food; hence a diet consisting mostly of nonperishable foods must be adopted. While in rural districts there is frequently plenty of fresh food, such as fruit and vegetables, the city dwellers live mostly on carbohydrate-rich food. Infants are exclusively breast fed or are given only diluted condensed milk, since condensed milk can be kept without refrigeration. Fresh vegetables and fruits are not given to infants, even in the second year of life. The authors determined the vitamin C (ascorbic acid) content in 20 samples of human milk, in the blood plasma of 89 nursing mothers and in the blood plasma of 124 children, 32 of them infants below the age of 1 year. Ninety per cent of all examined samples revealed levels below normal and 60 per cent far below normal, while 30 per cent showed levels suggestive of scurvy. The authors conclude that ascorbic acid deficiency is a public health problem of paramount importance in the tropics.

Lancet, London

2:313-352 (Aug. 26) 1950

Discussion Methods in Preclinical Teaching. M. L. Johnson.—p. 313.
Education for General Practice: Psychosocial Factors. H. V. Dicks. —p. 317.
Origins and Outcomes of Patient's Stay in Hospital· Report on Project of Teaching Social Medicine. E. Addiscott, J. H. F. Brotherston and R. C. MacKeith.—p. 320.
Teaching of Social Medicine in University of Sheffield. W. Hobson and J. Pemberton.—p. 323.
"An Unconscionable Time A-Dying": Some Outmoded Practices Still Current. W. P. U. Jackson.—p. 324.

Medical Press, London

224:195-214 (Aug. 30) 1950. **Partial Index**

Indications for and Prognosis in Surgical Treatment of Gastric and Duodenal Ulcers. W. R. S. Hutchinson.—p. 203.
*Modern Trends in Spinal Anaesthesia. A. R. Hunter.—p. 206.

Modern Trends in Spinal Anesthesia.—Hunter feels that it is now possible to make a much truer assessment of spinal anesthesia. He reviews the physical factors, the physiological and circulatory factors, the neurophysiological aspects and the nervous complications. Limits to the use of spinal anesthesia are set by the competence of the anesthetist, the physical state of the patient and the type of operation to be performed. In the hands of the inexperienced, both inadvertent overdosage and partial failure will be common. When the method is used by the unintelligent, who believe that the dose is "the contents of one ampule," frequent catastrophes are inevitable. Contraindications to spinal anesthesia are local or general sepsis and disease of the spinal cord. The most serious contraindication is cardiovascular insufficiency of such a degree that the patient is unable to compensate for the vasodilatation which is produced. Patients with serious blood volume deficiency come into this group, even if the blood pressure is maintained at normal levels by compensatory vasoconstriction. So also do those with severe myocardial failure. The patient's temperament is not a guide to his suitability for spinal anesthesia. With adequate premedication the most nervous patient can be given a spinal anesthetic. Spinal anesthesia is unsuitable for operations above the xiphisternum, nor is it likely to give satisfactory results when used alone for operations in the upper part of the abdomen, since in this region the segmental level of the autonomic innervation of the viscera is so high that complete vasomotor paralysis is an almost inevitable accompaniment of adequate spinal block. For operations on the colon, on the small bowel, for suprapubic exploration of the bladder and for all operations deep in the pelvis, spinal anesthesia provides an unvarying degree of relaxation and an immobility of the viscera that is not obtainable with any other anesthetic technic.

South African Journal of Clinical Science, Cape Town

1:73-148 (June) 1950

Acute Intestinal Obstruction with Special Reference to Closed Loop and Strangulating Lesions in the Bantu: Clinical Study. J. Hamman and D. Alldis.—p. 73.
Syndrome of Malignant Malnutrition: Observations on Relation of Serum Proteins to Occurrence of Oedema and Effect of Diet. E. Janssen and J. S. le Roux.—p. 100.
*Gravitational Leg Syndromes. W. Girdwood.—p. 114.

Gravitational Leg Syndromes.—Girdwood points out that, although much discomfort, ill health and restriction of normal activities are caused by chronic varicose ulcers, varicose veins and postphlebitic lesions, little permanent success has resulted from the treatment usually employed. The temporary nature of the relief afforded has been due to the failure to appreciate the magnitude of the problem involved. Gravitational leg syndromes are an assortment of disorders in which a series of vicious cycles occur, constantly aggravating the condition and leading to a final picture involving venous antigravity failure, failure of the "pump" and a chronic, indurated leg ulcer with scarring. Three links should receive attention in the cycles which predominate: the ulcer, the pump and the veins. In the strip grafting which the author recommends the indurated scarred tissue about the ulcer and the ulcer itself are excised. It is important to preserve a healthy layer of covering to the tendons, which is usually possible. A long incision is made extending above the ulcer to the upper part of the leg and often another below the ulcer. The deep fascia is incised in the line of the incision or excised, and the underlying muscle is exposed. If the communicating veins are incompetent, these are divided. If there is foot drop, lengthening is done at this stage at the level of muscular fibers. A split skin graft, usually in one piece, is then applied to this raw area. The three irreversible factors, scar, lymphedema and skin stricture, are overcome by this procedure. The graft, placed on a healthy base, obtains its nutrition from the deep tissues through the muscle; because of the continuity of the graft on muscle with the graft over the previous ulcer site, the nutrition continues to that area and even to the neighboring skin. Skin stricture is relieved by strip grafting as the graft acts as a "let in" procedure, thus overcoming the stricture. The operation results in firm support to the communicating veins and allows the correction of antigravity failure of the communicating veins. Shortening of the Achilles tendon is corrected, and ankle movements are restored. Strip grafting attacks not only the ulcer problem but the vein problem, and by mobilization of the ankle and removal of pain it reconstitutes the pump.

Tubercle, London

31:197-222 (Sept.) 1950

Tuberculosis in Holland. L. H. A. Hoefnagels.—p. 198.
Treatment of Tuberculous Meningitis. C. J. McSweeney.—p. 210.

Acta Tuberculosea Scandinavica, Copenhagen

24:1-176 (No. 1-2) 1950. Partial Index

Duration of Fatal Pulmonary Tuberculosis. B. Andersen.—p. 1.
*Tuberculin Sensitivity in Boeck's Sarcoid. R. T. Bjørnstad.—p. 15.
Observations on Biological Properties of BCG Treated by Freeze-Drying. J. Böe and R. I. N. Greaves.—p. 38.
*Tracheobronchial Tuberculosis and Streptomycin. W. Mascher and S.-B. Mattson.—p. 114.

Tuberculin Sensitivity in Boeck's Sarcoid.—Bjørnstad used up to 10 mg. doses of tuberculin in intracutaneous tests of 71 patients with Boeck's sarcoid and with definite skin lesions. Fifty patients (70.4 per cent) had a negative reaction and 21 (29.6 per cent) a positive reaction. Twelve patients had a positive reaction to 0.1 mg.; two had a positive reaction to 0.01 mg., but none had a positive reaction to smaller doses. The tuberculin sensitivity of the tuberculin-positive patients with Boeck's sarcoid is weak. Fifty of the patients were aged over 40; 33 had a negative reaction to tuberculin. Nine of the 50 patients with a negative reaction had been exposed to tuberculosis in their homes. The chest roentgenograms of 11 of these 50 patients showed calcium shadows, which most likely indicated a previous tuberculous infection. The frequency of the negative reactions must be due to Boeck's sarcoid itself and cannot be due to the fact that the patients with a negative reaction have escaped tuberculous infection. It is possible that a large number of patients with sarcoid had a negative reaction to tuberculin because their tuberculous infection had been cured. Negative intracutaneous tests with up to 1 mg. of tuberculin will afford valuable aid in differentiation of Boeck's sarcoid and tuberculosis. The diagnostic significance of negative or weak reactions to tuberculin is greatest in patients with skin lesions or involvement of lymph nodes, while negative reactions are of lesser diagnostic significance in patients with pulmonary involvement resembling miliary tuberculosis. From the etiological point of view the absent or weak tuberculin sensitivity is due to a hitherto unknown chronic infection which causes increased resistance to tuberculosis. The tuberculin anergy and resistance to tuberculosis in Boeck's sarcoid may or may not have a purely tuberculous etiology.

Streptomycin in Tracheobronchial Tuberculosis.—Mascher and Mattson treated 22 patients with tracheobronchial tuberculosis with streptomycin. The drug was administered by aerosol, 0.5 Gm. dissolved in 10 cc. of isotonic solution of sodium chloride daily, and by intramuscular route, 1 Gm. in two divided doses of 0.5 Gm. daily. Five patients were given aerosol treatment alone; nine received the drug by intramuscular route alone; two were treated simultaneously by aerosol and by intramuscular injection, and six were given alternating aerosol and injections. Bronchoscopic examination showed that healing of the local process occurred in 17 patients, five of whom were treated by aerosol alone, eight by injections alone, one by aerosol and injection simultaneously and three alternately by aerosol and by injection. Three patients were improved, and treatment failed in two. Nine patients had become free from Koch's bacilli. Results of bacterial tests were positive in eight patients whose local process was healed, but six of them had active pulmonary lesions which accounted for the presence of bacteria. Relapse occurred in three patients. Three patients had vestibular symptoms, but treatment had to be discontinued in only one. Two patients had allergic symptoms. Desensitization was achieved in one with 0.01 Gm. of streptomycin given twice daily for eight days and doses increased gradually to 0.02, 0.03, 0.05, 0.1 and 0.25 Gm. twice daily. Fibrotic stenosis developed in five. Treatment for four to six weeks with a total dose of 50 to 60 Gm. should be sufficient for mild lesions of mucous membranes; the authors caution against too early discontinuance of treatment, because of threatened relapses. Combined treatment by aerosol and by intramuscular route is recommended because greatest concentration of the drug in the affected tissues, i. e., in the bronchial wall, may thus be achieved. Endobronchial tuberculosis should be treated with streptomycin before collapse therapy is considered.

Chirurg, Heidelberg

21:261-324 (May) 1950. Partial Index

Intraoperative Blood Transfusion. J. Rehn.—p. 266.
Determination of Time and Extent of Blood Transfusion to Prevent Surgical Shock. B. Löhr.—p. 270.
Structure and Mechanism of Aortic Wall with Consideration of Surgical Treatment in Stenosis of Isthmus. A. Benninghoff.—p. 276.
Modification of Trachea by Goiter and Significance of Preoperative Roentgen Examination in Thyroidectomy. F. W. Wichmann and P. Schmidt.—p. 280.
Unsolved Problems in Vascular Surgery. H. Gesenius.—p. 284.
Preoperative Irradiation in Cancer of Breast: Pathologic Studies. E. Stenger.—p. 292.
Technic of Extirpation of the Larynx. H. Hellner.—p. 297.
*Should the Right Ventricle Be Punctured During Venous Air Embolism? S. Frey—p. 305.

Right Ventricle Puncture During Venous Air Embolism.—Frey says that, although ventricular puncture had been largely given up as treatment for venous air embolism, two recent reports about the alledgedly successful treatment of air embolism by ventricular puncture call for reinvestigation. He cites animal experiments which indicate that air is found in the right side of the heart when large quantities of air have been injected intravenously, not because of failure of the heart as the result of air filling, but because the pulmonary vessels are blocked by a part of the air and the escape of the remainder of the air is mechanically prevented. The author explains death as the result of venous air embolism in the following manner. Air which reaches the right side of the heart through a vein is driven in the form of bubbles into the pulmonary artery. These bubbles remain in the branches of the pulmonary artery. If complete blockage of the pulmonary circulation is produced by the air bubbles, death results, because the organism receives no oxygen (asphyxiation). Blockage of a large part of the lung (about two thirds) likewise causes asphyxiation, but if blockage of the circulation is such that an adequate amount of blood can still be oxygenated, then mechanical impairment of the heart action by the blockage in the pulmonary circulation may result in death (heart death). The clinical course of air embolism depends not so much on the quantity of air but on the rapidity with which it enters the circulation. Enormous quantities of air can be injected into animals without unfavorable effects, provided the injection is made slowly, because then the air enters the right heart in small bubbles and is driven into the small ramifications of the pulmonary artery, so that only small parts of the lung become blocked. If the air enters rapidly and large bubbles enter the heart, these large bubbles block the large branches of the pulmonary artery and completely interrupt the pulmonary circulation. This explains also why entrance of air into veins close to the heart leads to rapid death, whereas air in peripheral veins is comparatively harmless. In some cases air embolism causes no clinical symptoms, in other cases symptoms such as dyspnea, palpitation, piercing pains in the chest, anginal pains and vertigo rapidly disappear. In fatal air embolism death may be sudden or protracted. The breathing of oxygen and the intracardiac injection of epinephrine are the most effective methods in air embolism. The aspiration of air from the right side of the heart by means of percutaneous puncture is not advisable, because it is based on a mistaken assumption. The author analyzes the aforementioned two cases and questions the life-saving effect of cardiac puncture.

Deutsche medizinische Wochenschrift, Stuttgart

75:815-846 (June 16) 1950. Partial Index

Late Results of Surgical Removal of the Spleen. H. Schönlebe.—p. 823.
*Does Typhus Produce Life-Long Immunity? F. von Bormann.—p. 826.
Results of Ultrasonic Wave Therapy in Rheumatic and Degenerative Diseases of Joints. W. Zinn and V. Sonnenschein.—p. 827.
Experiences with Antabuse in Treatment of Chronic Alcoholism. R. Goblet. —p. 831.
*Testosterone in Treatment of Incurable Carcinoma of Female Genitalia. H. Burger and H. Drescher.—p. 835.

Immunity After Typhus.—According to von Bormann, of 259 inhabitants of a Russian village who had had typhus 10 or 20 years previously, 66 (about a fourth) contracted typhus a second time. Only 11 of these second attacks had an abortive course; 15 were severe. There were no fatalities. In the adult inhabitants who did not have typhus previously, the morbidity was 52 per cent. The author concludes from this that, although an attack of typhus confers protection, it does not confer lifelong immunity.

Testosterone for Incurable Carcinoma of Female Genitalia.—Burger and Drescher state that 20 women with incurable carcinoma of the genitalia were treated with testosterone propionate at Women's Clinic of the University of Tübingen. Irradiation was usually continued during the time the male hormone preparation was given. Some patients were given, in addition, so-called mitosis toxins, such as arsenic, nitrogen mustards, colchicine or choline. Improvement was observed in 13 patients who were treated with doses of 100 to 400 mg. of testosterone propionate. The general condition improved, pain subsided, the appetite improved and some showed an increase in weight and a decrease in menopausal symptoms. Although the fatal outcome could not be prevented, life was prolonged in some instances. The hormone treatment failed in two cases.

Klinische Wochenschrift, Heidelberg

28:385-424 (June 15) 1950. Partial Index

*Second Hormone of Carbohydrate Metabolism Produced in Pancreas (Glucagon): Its Production by Alpha Cell System. K. Gaede, H. Ferner and H. Kastrup.—p. 388.
Toxic Effects Caused by Treatment with Nitrogen Mustards. E. Gadermann.—p. 394.
Use of Stilbamidine in Generalized Plasmocytoma. H. Goldeck.—p. 399.
Recurring Tonsillitis. A. Jonasch.—p. 407.
Acid-Base Equilibrium in Blood of Persons with Chronic Malnutrition. E. Dunker and H. Gardemann.—p. 412.
Sugar Values of Normal Cerebrospinal Fluid During Fractional Withdrawal. H. Weise.—p. 416.

Pancreatic Glucagon.—Gaede and his co-workers direct attention to the so-called paradoxical effect of insulin, which consists in a mild increase in blood sugar immediately before the hypoglycemic effect of insulin becomes manifest. A substance which is glycogenolytic and increases blood sugar has been isolated as the result of careful chemical preparation of pancreas from horses and of substances remaining after the extraction of insulin from cattle and swine pancreas. This pancreatic substance, which has been designated a glucagon, is a pancreatic hormone. The pancreas contains three systems. The excretory system produces digestive enzymes as well as lipotropic substances, which Dragstedt designated a "lipocaic" and which is probably identical with what Gavin, Patterson and McHenry termed inosit. The beta cells of the pancreas produce insulin. To determine what part of the pancreas produces glucagon, the antagonist of insulin, which increases blood sugar, the exocrinic portion of the pancreas was destroyed in a dog by ligation of the excretory ducts. Subsequently, the beta cells were destroyed in this animal by the injection of alloxan. This turned the pancreas into a connective tissue body which, besides small remnants of atrophic lobules, contained only alpha cells. Extracts of this gland had only the effect of increasing the blood pressure. It appears, therefore, that the increasing blood pressure factor glucagon, originates in the alpha cells. The role of these cells and the insulin-producing beta cells in the regulation of the carbohydrate metabolism is discussed. Insulin reduces the blood sugar content and promotes the synthesis of glycogen; glucagon, on the contrary, increases the blood sugar and promotes the decomposition of glycogen. Glucagon produces glucose, and insulin further oxidizes it. This probably explains why both hormones have an antiketogenic effect. The alpha cell system probably plays a role in the reaction of the organism to insulin and might cause, or at least influence, the tendency to acidosis observed in some diabetic patients. It is probable that glucagon is responsible for the distinctive characteristics of certain forms of diabetes.

Medicina, Buenos Aires

10:157-210 (June) 1950. Partial Index

*Site of Formation of Renin in Kidneys. A. C. Taquini, J. C. Fasciolo and D. Fernández Luna.—p. 174.
*Diabetes Mellitus in Infant Five Months Old. J. C. Recalde Cuestas, J. J. Staffieri and P. O. Tommasino.—p. 185.

Place of Formation of Renin in Kidneys.—Taquini and collaborators made quantitative determinations of renin in the kidneys of dogs, cats and pigs. They used a method which permits measurement of this substance in minute quantities in renal tissue. They found that renin is either produced or stored in the convoluted tubules in the outer layer of the renal cortex. The results did not indicate whether the proximal or the distal segments of the convoluted tubules play the predominant role in the formation or storage of renin.

Diabetes Mellitus in Infant.—Staffieri and Tommasino report diabetes mellitus in a five month old infant; they believe this to be the first in the Argentine medical literature. There was neither obesity nor diabetes in the family. The infant did not have any infectious process before the appearance of diabetes. The diet had to be approximated as far as possible to a normal diet suitable for a patient of this age. The disease caused acute toxic symptoms. The liver was enlarged. The treatment consisted of 5 units of insulin given every four hours. The daily maintenance dose of insulin was reduced to 8 units, given in two doses of 4 units each.

Pediatria, Naples

58:153-244 (March-April) 1950. Partial Index

*Aureomycin and Chloramphenicol in the Treatment of Whooping Cough. L. Barbera and G. Marchese.—p. 177.
*Combined Penicillin and Synthetic Antihistamine in Treatment of Glomerulonephritis in Children. V. Baffi.—p. 198.

Aureomycin and Chloramphenicol in Whooping Cough.—Barbera and Marchese treated 18 children with whooping cough with aureomycin and chloramphenicol. A dose of 50 mg. a day of either drug per kiligram of body weight was administered four times in 24 hours for five to eight days. There was a definite improvement in every case as evidenced by the lessening of the number and intensity of paroxysms, rapid recovery of the general health and return of sleep and appetite. The earlier treatment was started, the more pronounced these results. Suckling infants benefited most from the treatment. With the exception of a mild intolerance toward aureomycin in some of the youngest children there was no difference in the therapeutic effect of the two drugs.

Combined Penicillin and Antihistamine in Glomerulonephritis in Children.—Baffi reports five cases of glomerulonephritis in children between the ages of 2 and 10 years. The disease in all cases was due to a pharyngeotonsillar infection. The combined treatment consisted of administration of penicillin and of antihistaminic drugs. Penicillin was given by the intramuscular route every three hours in a daily dose of 160,000 units for 10 to 20 consecutive days. The antihistaminic drug was given in daily doses of four or five tablets of 0.10 Gm. each in the course of penicillin treatment and for five days more after discontinuation of penicillin. The disease was controlled in the first week of treatment. The author concludes that the combined treatment gives better results than either penicillin or antihistaminic drugs alone.

Praxis, Bern

39:607-646 (July 20) 1950. Partial Index

Development of Pediatrics in Switzerland. E. Feer.—p. 609.
Clinical Aspects of Acute Water and Electrolyte Disturbances in Infants: Toxicosis with Hyperelectrolytemia, Hypopotassemia and Masked Chloride Deficiency in Infant 2 Years Old. G. Fanconi and A. Prader.—p. 611.
Hypertrophy of Pylorus in Suckling Infant. M. Jaccottet and R. Jaccard.—p. 614.
Pituitary Adrenocorticotropic Hormone (ACTH): Experimental and Clinical Study. R. S. Mach and P. Ducommun.—p. 618.
*Clinical Aspects and Problems of Polyradiculitis in Childhood (Guillain-Barré Syndrome). E. Glanzmann.—p. 622.

Clinical Picture and Problems of Guillain-Barré Syndrome.—Glanzmann reports nine cases of Guillain-Barré syndrome in children. The syndrome occurred as an idiopathic disease in a girl aged 4; it was associated with encephalomyelitis after measles in a girl aged 7, and with Landry's paralysis in a girl aged 2. One girl aged 11, who had had poliomyelitis at the age of 7, had Landry's paralysis with a complete recovery. It seems likely that her first as well as her second disease was a Guillain-Barré syndrome, since allergic reactions have a tendency to recur. Two brothers aged 1 and 4 years had erythredema polyneuropathy associated with Guillain-Barré syndrome. One girl aged 4 had erythredema polyneuropathy and polyradiculitis, which presented itself as a febrile, intercurrent, secondary infection. Radiculitis with great increase in the protein in the cerebrospinal fluid, without a corresponding increase in cells, occurred, during an epidemic of poliomyelitis, in a boy aged 4 after severe gastroenteritis. One boy aged 6 with megasigmoid had amyotrophic polyneuritis associated with Guillain-Barré syndrome which was probably due to a deficiency of vitamin B_1 caused by an abnormal bacterial condition in the intestine. The epidemic occurrence of polyradiculitis with or without simultaneous epidemic of poliomyelitis, the occurrence of polyradiculitis in siblings and the sporadic occurrence of polyradiculitis independent of any other disease suggests that a specific neurotropic virus may possibly be the causative agent. Polyradiculitis could be considered as a sister disease of poliomyelitis, the relation being similar to that of parapertussis and true pertussis. Polyradiculitis can be differentiated from poliomyelitis by the clinical picture.

Presse Médicale, Paris

58:937-948 (Sept. 2) 1950

New Toni-Cardiac Substance: Crystallized Thevetin. C. Lian and A. Kursat.—p. 937.

New Studies on Mushroom Poisoning. L. Binet, M. Leblanc and G. Wellers.—p. 938.

*Hemolytic Disease in Newborn Due Only to ABO Incompatibility, Successfully Treated with Transfusion of O-Erythrocytes and AB-Plasma. R. Seigneurin, J. Roget, J. Groulade and F. Viallat.—p. 939.

Hemolytic Disease in Newborn Due only to ABO Incompatibility.—Seigneurin and co-workers report an infant boy born at term, his parents' second child, with icterus occurring several hours after birth and becoming severe within the succeeding 24 hours. The Rh factor was not responsible for the icterus, since the father was B Rh positive, the mother O Rh positive and the infant B Rh positive. Determination of the ratio of the regular agglutinins in the mother's serum showed an abnormal increase in anti-B agglutinins (1:2048). Erythroblastosis and leukocytosis in the infant resulted from maternal isoimmunization to hemoagglutinogen B. This also caused the passing of anti-B antibodies into the milk of the mother in the same high ratio as in the mother's serum. The infant was given three transfusions of 100 cc. of blood into a fontanel. The first transfusion was given 38 hours after birth, the second 18 hours later and the third on the twelfth day of life. The transfused blood was artificially composed of O erythrocytes in suspension in AB plasma. The mother's milk was withheld from the infant. The icterus became less severe on the third day and disappeared completely on the ninth day. Erythroblastosis and leukocytosis subsided, and the number of red blood corpuscles increased. The infant was apparently cured when it was discharged from the hospital on the twentieth day.

Revista Brasileira de Cirurgía, Rio de Janeiro

19:471-564 (May) 1950. Partial Index

*Surgical Treatment of Pulmonary Tuberculosis: Upper Partial Thoracoplasty. Based on Results in 577 Thoracoplasties. E. J. Zerbini and M. Alves Lima.—p. 489.

Surgical Treatment of Pulmonary Tuberculosis.—Zerbini and Alves Lima performed 577 partial thoracoplasties in 333 patients with pulmonary tuberculosis. The disease was unilateral in 150 cases and bilateral in 183. The contralateral lesion in the latter group was controlled after (unilateral) thoracoplasty by pneumothorax in 87 patients, by pneumothorax and Jacobaeus' operation in 15, by pneumothorax with crushing of the phrenic nerve in five, by extrapleural pneumothorax in two and by bilateral thoracoplasty in three; the contralateral lesion healed spontaneously in 71 patients. The cavity in these patients had a diameter of less than 3 cm. in 83, of more than 3 cm. in 193 and of more than 8 cm. in 57. Thoracoplasty was performed in only one stage in 111 patients, in two stages in 197, in three stages in 10, in four stages in three. Upper partial thoracoplasty resulted in cure in 174 patients (52.5 per cent) between one and 13 years after the operation. The operation is likely to fail because of the coexistence of pulmonary and bronchial tuberculosis. A roentgenologic and bronchoscopic diagnosis of bronchial tuberculosis is important. Treatment of the pulmonary lesion, when both types are present consists of a cavernoscopy, when the general condition of the patient is poor, and of lobectomy or pneumonectomy, if the general condition of the patient makes the operation advisable.

Schweizerische medizinische Wochenschrift, Basel

80:783-806 (July 29) 1950

Prefrontal Leukotomy. G. Condrau.—p. 783.

Results of Studies on Fine Structure of Urinary Calculi of Patients from the Near East. W. Epprecht and H. R. Schinz.—p. 792.

*Myocardosis Associated with Cirrhosis of Liver. M. Oppenheim.—p. 795.

Angiocardiopneumography in Diagnosis of Tumors of Lung and Mediastinum. M. Battezzati, F. Soave and A. Tagliaferro.—p. 799.

Myocardosis Associated with Cirrhosis of Liver.—Oppenheim reports cirrhosis of the liver in 128 men and 40 women. Seventy-eight of the patients (57 men and 21 women) died, and necropsy was performed. Signs of myocardosis were observed in a considerable number of the living patients and in all the fatal cases. Pathological conditions of the blood proteins were observed in practically all. A positive Weltmann reaction, increased sedimentation rate of blood, positive cadmium reaction, lowering of total protein ratio and increase of alkaline phosphatase were the most frequent and constant pathological signs in the living patients and in the fatal cases, but these signs were more frequent and more pronounced in the fatal cases. Definite correlation was observed between the severity of the anatomic disease, the disturbance of the protein chemistry, the pathological electrocardiograms and the course of the disease. There were twice as many patients without hypoproteinemia who survived as there were patients without hypoproteninemia who died, while the number of patients with hyproteinemia who survived equaled the number that died. Fatal cases were less frequent among patients with normal electrocardiograms. Hypoproteinemia proved to be first and the pathological electrocardiogram second with respect to prognostic significance. There exists a reciprocal effect between dysproteinemia, particularly hypoproteinemia, and myocardosis, in that the hypoproteinemia contributes considerably to the development of myocardosis. Since hepatic lesions are manifested by dysproteinemia, the myocardosis associated with cirrhosis of the liver should be considered a hepatogenic disease of metabolism of the myocardium.

Semaine des Hôpitaux de Paris

26:2915-2950 (Aug. 18) 1950

*Nephro-Omentopexy: Therapeutic Results. J. C. Rudler and J. Cottet. —p. 2915.

Observations Concerning Bronchoscopic Topography and Catheterization of Bronchial Orifices. G. Arnaud and J. Ioannou.—p. 2923.

Capillary Hyperpermeability: Treatment in Post-Traumatic Local Reflex Syndromes. H. Laborit.—p. 2930.

Nephro-Omentopexy. — Rudler and Cottet performed nephro-omentopexy on 13 patients, 12 of whom had typical nephroangiosclerosis with retention of urine and albuminuria; one had acute nephritis in the phase of transition to chronic nephritis with hypertension. Ten of the 12 patients with nephroangiosclerosis were hypertensive. Urinalysis and renal function tests were done before the surgical intervention. Thus a definite functional difference was frequently revealed in the two kidneys. Surgical intervention was performed on the kidney whose function was impaired to a greater extent. Catheterization of the kidneys was repeated three to six months after intervention. The function of the kidney operated on was equal or superior to that of the other kidney. Two patients died of anuria within the first six postoperative days. Five additional patients died within three months to two and a half years after operation, three of them from cardiac failure. Two more patients died within three years and three months after the operation. Two of the four surviving patients were subjected to bilateral nephro-omentopexy. The preoperative blood urea levels of 1.05 Gm. and 1 Gm., were reduced to about 0.50 Gm. in these two patients. The phenolsulfonphthalein excretion was reduced to 25 per cent in the first of these patients, and fatigability, headache and digestive disturbances were improved in the second patient. Cardiac decompensation and blood urea above 1.80 to 2 Gm. are definite contraindications of nephro-omentopexy. One should perform renal function tests and catheterization in order to avoid surgical intervention in a phase of an ascending uremic bout and also to prevent the risk of operating on the only kidney which may still have some of its function while the other is no longer functioning. Nephro-omentopexy did not aggravate the renal function in any of the authors' cases, although all of them were severe. Ureteral catheterization showed that the kidney operated on was improved as compared to that not operated on. It seems necessary that both kidneys be operated on. Although nephro-omentopexy is not the ideal treatment for chronic nephroangiosclerosis, it may induce improvement in patients whose condition is not so severe. Arterial hypertension and albuminuria are not benefited by nephro-omentopexy.

Ugeskrift for Laeger, Copenhagen

112:919-948 (June 29) 1950. **Partial Index**

*Effect of ACTH and Cortisone in Rheumatic Fever. A. Videback, G. Asboe-Hansen, P. Astrup and others.—p. 919.
Importance of Cultivation of Gonococci from Rectum in Women. K. Bülow.—p. 929.

ACTH and Cortisone in Rheumatic Fever.—Videback and his associates report that treatment with pituitary adrenocorticotropic hormone (ACTH) gave remarkably good clinical results in a girl, aged 15, with a first acute attack of rheumatic fever and in a woman, aged 28, with fever and joint disorder of almost a year's duration. It had more doubtful effect in a youth, aged 16, who also had a first acute attack of rheumatic fever and in whom earlier treatment with cortisone was without noteworthy result. Temperature and pulse rate improved strikingly in all patients. The general condition was noticeably better. The pronounced exudative pericarditis in the first patient decreased rapidly during and after treatment; in the second patient, with pancarditis, there was some decrease in the heart shadow; in the third patient, with pericarditis, the heart shadow was not affected. In all patients there were moderate amounts of hyaluronic acid in the connective tissue before treatment, but none was demonstrable in the skin when the treatment was terminated. Reduced healing power in wounds was noted in one instance. Complicating infections developed in two patients.

112:985-1006 (July 13) 1950

*Mortality and Danger of Cancer of Stomach in Patients with Pernicious Anemia. J. Mosbech and A. Videback.—p. 985.
Two Cases of Secondary Intestinal Tuberculosis Treated with Para-aminosalicylic Acid. O. Jensen.—p. 991.

Cancer of Stomach in Patients with Pernicious Anemia.—Mosbech and Videback say that of the 301 patients with pernicious anemia (219 women, 82 men) treated in Bispebjerg Hospital from 1928 to 1949, 224 were observed for more than 10 years. Follow-up of these cases showed that life expectancy for women who were treated for pernicious anemia is the same as that of the normal population and that for men there is a slightly but not significantly higher mortality. Of the total number of patients, 115 (83 women, 32 men) were dead. Twenty-one patients died from cancer, which corresponds to the expected number of deaths from this disease, but no less than eight women and seven men had cancer of the stomach. The higher incidence of cancer of the stomach in the men is difficult to explain. There was no evidence that the men were alcoholics. The investigation confirms that patients with pernicious anemia have a special predisposition to cancer of the stomach. This is attributed not so much to the pernicious anemia in itself as to the fact that these patients have achylia.

112:1007-1040 (July 20) 1950. **Partial Index**

Vinyl Ether Alone or in Combination with Ether Anesthesia in Adenotomy and Tonsillectomy. T. Strange.—p. 1012.
*Inoculation Hepatitis in Patients Treated with Dry Serum. G. Kjaergaard.—p. 1014.
Functional Training in Flat Foot. S. O. Brandt.—p. 1018.

Inoculation Hepatitis in Patients Treated with Dry Serum.—Kjaergaard says that follow-up of 542 patients treated with Danish pooled dry serum and observed for at least seven months revealed that in 23 (3.87 per cent) hepatitis occurred which might be attributable to inoculation with hepatitis virus during hospitalization. In a control group hepatitis occurred in 0.64 per cent. In the general population the incidence of hepatitis during the same period was between 0.3 and 0.4 per cent. The two groups of patients, however, are not directly comparable, and that the jaundice was caused by the serum infusions alone is regarded as doubtful. The frequency of hepatitis in the patients treated with dry serum corresponds closely to that reported by Marcussen in patients treated only with intravenous injections.

Wiener klinische Wochenschrift, Vienna

62:381-396 (June 2) 1950. **Partial Index**

*Usefulness and Hazards of Treatment of Typhoid and Paratyphoid Fever with Chloramphenicol (Chloromycetin®). P. Mollaret.—p. 381.
Early Diagnosis and Estimation of Chances of Treatment of Cancer of the Stomach. R. Boller.—p. 384.
Endometriosis of Urinary Bladder and Estrus-Producing Compounds. H. Siegmund.—p. 387.
*Forty Cases of Progressive Peritonitis After Perforation of Appendix Without Fatality. J. Eberle.—p. 389.

Chloramphenicol in Typhoid and Paratyphoid Fever.—Mollaret treated 100 patients with typhoid and paratyphoid fever with chloramphenicol (chloromycetin®). Treatment was instituted with an initial dose of 2 or 3 Gm. Maintenance doses of 0.25 or 0.50 Gm. were administered in capsules every three hours. The temperature was lowered within one or two days, reaching 98.6 F. (37 C.) within about four days. Headache, listlessness and insomnia disappeared within 48 hours. Diminution in the size of the spleen was observed within four to five days. Digestive disturbances showed a somewhat slower response. Cultures of blood and of feces rapidly became negative. There were recurrences in 15 patients. Intestinal hemorrhages occurred in seven patients and intestinal perforation in one. Venous thrombosis developed in three patients in the course of the treatment. Encephalitis was observed in nine patients and jaundice in two. Death from circulatory collapse occurred in two patients. Necropsy revealed lesions similar to those which were observed in guinea pigs after the injection of typhoid endotoxin. The author believes that the drug exerts an indirect toxic effect by the massive liberation of endotoxin through the massive disintegration of the bacteria. Psychic disturbances, such as agitation, hallucinations and depression, were observed in all patients but subsided rapidly except in two patients who had to be transferred to the psychiatric ward for a prolonged period. Experience in the two fatal cases induced the author to desist from the initial dose and to use maintenance doses of 2 or 3 Gm. of the drug within 24 hours. Treatment should begin with smaller doses even in the patient in the advanced stage of the disease whose organism probably has been saturated with endotoxin. Treatment should be discontinued temporarily, for two or three days, in patients with subnormal blood pressure with a tendency to lowering of the differential pressure, acceleration of pulse and too rapid drop in temperature on the second or third day of the treatment.

Spreading Peritonitis After Perforation of Appendix.—Eberle reports 40 patients, 19 adults and 21 children, with spreading peritonitis due to perforation of the appendix. Operation was done with ether inhalation anesthesia in the majority of the cases. Exposure, isolation and removal of the appendix was carried out with as little trauma as possible, so that reparative walling off processes were not interfered with. Mopping and suctioning was done in the cecal area, but the abdominal cavity was not irrigated. A 5 mm. rubber drain was inserted in the wound, and peritoneum, muscles and fascia were closed tightly. One Gm. of streptomycin, 100,000 to 200,000 units of penicillin and 6 Gm. of sulfacetamide in 50 cc. of isotonic sodium chloride solution were injected through the drain, which was then removed. Continuous drip infusion was given for 48 hours, but as a rule sulfonamide compounds or antibiotics were not administered after the operation. However, two patients with perforation of a cecal abscess were given 0.25 Gm. of streptomycin every six hours and 40,000 then 20,000 units of penicillin by parenteral route every three hours for several days. Temperature was restored to normal within a few days; the boardlike hardness of the abdominal muscles subsided on the second or third day, and intestinal function was restored rapidly. There were no fatalities. Complete recovery occurred in 10 to 14 days. Douglas' abscess developed in two cases, requiring incision in one. No other complications were observed.

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Voluntary Prepayment Medical Care Plans. Revised 1950. Paper. Pp. 137. Council on Medical Service, American Medical Association, 535 N. Dearborn St., Chicago 10, 1950.

This is the most current revision of an annual publication inaugurated by the Council on Medical Service in 1946. It is designed primarily for those who are interested in a summary description of the organization, benefits and costs of the many voluntary health insurance programs in operation. The original edition listed 45 plans operating in 27 states and the Territory of Hawaii. That edition included only those plans sponsored by medical societies and/or coordinated with local hospitalization plans. Each succeeding revision has listed an increasing number of plans. The current revision lists 78 such plans operating in 45 states, the District of Columbia and Hawaii. In addition, this issue lists other types of plans domiciled and operating in the Dominion of Canada. A three page table of contents lists the plans by states and by sponsorship The introduction relates the early development of health insurance plans under medical sponsorship and also makes reference to early actions of the House of Delegates. Since voluntary health insurance is evolutionary, the introduction contains an explanation of some of the current experiments in this important field. Part 2 defines many of the terms used in explaining the various phases of these plans. Part 7 contains a summary depicting the growth in number of plans, growth in enrolment, a brief description of the various types of plans and the different methods of organization.

The Art of Real Happiness. By Norman Vincent Peale D.D., and Smiley Blanton, M.D. Cloth. $2.75 Pp 247. Prentice-Hall, Inc., 70 Fifth Ave., New York 11, 1950

The authors, each well known in his field and author of previous successful books, have collaborated effectively in the production of this volume. They present a series of cases illustrating the commonest areas in which unhappiness occurs. The book opens with a discussion of new hope for a happier life, which the authors hold is possible for most persons of normal mentality. The love-hate duality is clearly defined and explained, together with the general principles underlying the attainment of peace of mind. Fundamental to the concept set forth in this book is the belief that there is a God from whom help can come if properly sought. From this premise, the authors have approached their cases in practice, and they so report them. The ability to relax after having done one's best, to stay healthy under pressure, to deal with depression (emotional) and anxiety, which are attributed mainly to guilt complexes, how to achieve a happy marriage (and to keep it that way), a solution for problem drinking, comfort in bereavement and the ability to grow older happily are all discussed optimistically yet realistically. The case report method and the solutions are clearly, interestingly and readably presented. The book can be recommended without reservation for lay readers whose problems fall within its scope.

Biological Actions of Sex Hormones. By Harold Burrows, C.B.E., Ph.D., F.R.C.S. Second edition. Cloth. $8.50. Pp. 615, with 8 illustrations, Cambridge University Press, Bentley House, 200 Euston Rd, London, N.W.1; American Branch, 51 Madison Ave., New York 10, 1949.

This is a coordinated summary consisting chiefly of laboratory studies on the biologic actions of the sex hormones in mammals. The treatise represents an exhaustive study thoroughly documented from the literature and from the author's experience of the effects of the gonadotropins, androgens and estrogens on living tissue and on the structure, function and behavior of the entire organism. As such, the book is chiefly of value to those conducting animal experimentation in this field or who require a source book.

Chirurgisch-gynakologische Grenzfragen: Physiologie und Pathologie der weiblichen Geschlechtsorgane in Beziehung zur Chirurgie. Von Prof. Dr. Herbert Uebermuth. Half-cloth. 9 marks. Pp. 168, with 16 illustrations. Georg Thieme, Thomaskirchhof 21, Leipzig C 1, 1950.

This book deals with borderline cases in gynecologic surgery. Many so-called borderline questions are propounded, and an attempt is made to answer these, the answers being based on both statistical data and the author's experiences. The book is divided into the following three parts: part 1, dealing with the female cycle and borderline surgical questions; Part A of this section, the influence of menstruation on operative procedures, and Part B, intraperitoneal bleeding (gynecologic) as an indication for surgical intervention; part 2, pregnancy and the surgical borderline questions, and part 3, gynecologic diseases and borderline cases. The pros and cons of surgical intervention during menses are discussed, and various authorities are quoted The author reports no complications in 126 major surgical procedures performed during menses. In 400 cases of intraperitoneal bleeding, only 55 were not caused by ectopic pregnancies; these 55 were of ovarian origin. In part 2 the author discusses hexobarbital sodium (evipan, evipal®) and ether anesthesia in cesarean section and states that the babies are born apneic when these are used.

The author stresses the point that infections, regardless of how slight, increase the possibility of abortion; therefore, abscesses and empyemas should be treated immediately. In cases of appendicitis associated with pregnancy, the author is opposed to conservative treatment even if an abscess has developed, and hence advocates early surgical intervention. He advises conservative treatment for six months after delivery in cases of "cholezystopathie." This term was confusing since it was not clarified. In gallbladder disease associated with pregnancy the author believes that surgery is indicated only if the patient's life is in danger, especially in those cases associated with common duct obstruction and empyema with impending peritonitis. Toxic diffuse goiter (Basedow's disease) is infrequent in pregnancy, and the author cites newer statistics showing an incidence of 0.2 per cent. Abortions, however, are frequent, occurring in 28.7 per cent of such cases. The book is well written and includes a few illustrative roentgenograms and microscopic sections. The subject of chemotherapy, however, should have been included The book can be recommended as a reference for those interested in surgery and gynecology.

The Causation and Treatment of Delayed Union in Fractures of the Long Bone. By Kenneth W. Starr, O.B.E., E.D., M.B., Surgeon, Sydney Hospital, New South Wales, Sydney. (This Jacksonian Prize Essay is Published with the Kind Permission of the Council of the Royal College of Surgeons of England). Cloth. $9. Pp. 215, with 109 illustrations. Butterworth & Co., Ltd., 4-6 Bell Yard, Temple Bar, London, W.C.2; The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1947.

In this relatively small book there is an enormous amount of information on the physiology and pathology of bone. Part 1, The Morphogenesis of Bone, includes discussions of the structure and chemistry of bone, a short history of the research in reconstruction, deposition and resorption of bone and the relation between structure and function in bone morphology. In part 2, The Healing of Fractures, the author discusses the anatomic structures involved in repair as well as the process of repair following fractures. Part 3, on the etiology and treatment of delayed union, includes statistics, adjuvant therapeutic methods, the principles and management of difficult fractures, the treatment of closed and open fractures, septic fractures and the skin problem. The bibliography indicates the extent of investigation of literature. The title of the book might result in underestimation of its contents. Actually, healing of the long bone fractures is dealt with in detail and from every aspect, and often what appears to be merely academically important is developed so that its practical significance in the study of delayed union or nonunion is made evident. The style is pleasant, and the presentation is logical, so that the book is easy to read. The line of thought is clear throughout. Underlying the whole text is a vindication of the deductions of John Hunter, which seemingly have been obscured by clinical investigations of the past half century.

There appears to be little in the book which is original, but the author has succeeded in presenting some often forgotten observations in such a manner that the reader is made to realize the poverty of originality in research work done in the last few decades. The author has presented a challenge to modern orthopedists to add to the information which has been gathered about bone healing in recent centuries. It is an appeal for research of a more fundamental nature rather than complete dependence on clinical research, with its apparent limitations. The author is wont to blame the advent of radiography for this present day tendency.

The text is well illustrated, with numerous well chosen microphotographs and diagrams. The portion on treatment represents a report of a vast experience in dealing with all types of fractures. Some of the treatment is outdated. This is particularly true of the use of antibiotics, the knowledge of which has been increased so rapidly. The book is an excellent textbook for anyone interested in bone and joint surgery. It meets a long-felt need for a comprehensive treatment of the basic facts about growth and healing of bone.

Oxidation-Reduction Potentials in Bacteriology and Biochemistry. By L. F. Hewitt, Ph.D., B.Sc., F.R.I.C., Director, Serum Research Institute, Medical Research Council, Carshalton, Surrey. Sixth edition. Cloth. $4.50. Pp. 215, with 41 illustrations. The Williams and Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1950.

Formidable as the title appears, this volume contains, in addition to the technical procedures and definitions, much information which students of all the biologic sciences, including medicine, will find of practical value and interest.

Many biologic processes are either oxidation-reduction systems (i. e., involve exchanges of electric charges) or are affected by oxidation-reduction reactions. The chapter on Systems of Biological Interest includes discussions of sulfydryl systems, hemoglobin, several of the vitamins and hormones, as they are related to the subject. The chapter Bacteriological Applications covers many aspects of the electrode potentials developed and their effects on the metabolism of unicellular organisms. New chapters, not in the last edition, 1948, include applications of oxidation-reduction systems to p_H determinations, metabolic cycles of integrated enzyme systems and the mode of action of antibiotics and chemotherapeutic agents. The author presents the material in an interesting style seldom encountered in technical books, and the text is well annotated with extensive references.

Manual: Procedures and Layout for the Infant Formula Room. American Hospital Association M8-49. Paper. $1.50 to members; $2.25 to nonmembers. Pp. 52, with 3 illustrations. The Association, 18 E. Division St., Chicago 10, 1949.

This manual is designed to guide hospital executives in planning, installing, equipping and administering a formula room. It was prepared under the guidance and with the assistance of members of a committee appointed by the Council on Professional Practice of the American Hospital Association. The important hospital problem having to do with the prevention and control of diarrheal disorders requires, for its solution, the proper organization and operation of the formula room. Sufficiently detailed information is reported to make this a practical and useful guide. In the preparation of this manual the committee has made an important and useful contribution.

The Salt-Free Diet Cook Book. By Emil G. Conason, M.D., and Ella Metz. Cloth. $3. Pp. 137. Lear Publishers, 105 E. 15th St., New York 3; Distributed by Crown Publishers, 419 Fourth Ave., New York 16, 1949.

This book consists chiefly of a group of menus with estimates of sodium content. Usefulness of this book is limited basically by the fact that more information is needed for the development of truly representative figures for the sodium content of individual foods.

The Future in Medicine: The March of Medicine, 1949. Number XIV of the New York Academy of Medicine Lectures to the Laity. Cloth. $2.50. Pp. 160. Columbia University Press, 2960 Broadway, New York 27, 1950.

The five articles that make up this volume cover phases of medicine that embrace law, sociology, physics, criminology, hematology, immunology, anthropology and psychiatry, so that the general public and members of the medical profession may review important recent developments which unquestionably will influence the future in medicine. These essays have been prepared by renowned authorities in their field. Their contributions are provocative and worthy of reading by all who have an interest in medical affairs. The volume well deserves a place with the others that make up this series and should be handy in libraries or on the night table.

Rose's Laboratory Handbook for Dietetics. Revised and Rewritten by Clara Mae Taylor, Ph.D., Professor of Nutrition, Teachers College, Columbia University, New York, and Grace MacLeod, Ph.D. Fifth edition. Cloth. $5. Pp. 358. The Macmillan Company, 60 5th Ave., New York 11, 1949.

This useful book has been expanded to include the more recent quantitative data on food composition. It is intended for use by teachers, community and public health nutritionists, the hospital dietician, the advanced student of nutrition, doctors interested in nutrition and any other persons who may be interested in the quantitative aspects of the national food supply and its nutritive value.

Part 1 includes a brief discussion of functions of food and food requirements for different age groups during various activities. Part 2 consists of common problems in dietary calculations. Reference tables make up part 3. These tables include such useful data as equivalents for weights and measures, vitamin equivalents, weight-height age tables for various age groups and conversion tables for common measures. Part 4 includes many tables of food composition. These tables give protein, fat, carbohydrate and caloric values for many common foods, along with such values as essential amino acids, minerals, oxalic acid, vitamin D, niacin, biotin, choline, pantothenic acid, paraaminobenzoic acid and pyridoxine. There is also in this section a useful table of approximate vitamin losses in cooking foods. For the most part this book is composed of tables and charts, which, although there is some repetition of data, appear entirely adequate. It also contains the necessary material to give the reader a basic understanding of the text.

Speech Problems of Children: A Guide to Care and Correction. Edited by Wendell Johnson, Ph.D. Prepared for the National Society for Crippled Children and Adults, by the American Speech and Hearing Association. Cloth. $3.75. Pp. 265, with 4 illustrations. Grune & Stratton, Inc., 381 4th Ave., New York 16, 1950.

Prepared according to a carefully developed plan to insure an authoritative approach, this book is the product of 11 authors under the editor. Included in the routine was a survey of each chapter by two professional consultants. As a result, the reader is assured of receiving information that can be considered accurate and generally acceptable, although, as is acknowledged, not all schools of thought regarding some aspects are necessarily represented.

The general problem of speech difficulties is broken down into its most important components. Included are chapters on functional disorders of articulation, speech retardation, cleft lip and cleft palate, cerebral palsy, hesitant speech, children of foreign tongues and children with impaired hearing. The general problem is clarified in the opening chapter, a survey by Frank P. Bakes, Ph.D., and there are general chapters on speech as it is acquired in the average home and in school surroundings. After each of the chapters dealing with specific subjects there is an adequate list of references. Interesting features are inclusion in the introductory section of a special message to parents and "A Word to All Concerned," in which general orientation is provided. Although directed perhaps primarily to parents, the volume contains material of equally great interest to social workers, nurses, teachers and physicians. The National Society for Crippled Children and Adults and the American Speech and Hearing Association are to be congratulated on having made an important contribution to better and more general understanding of speech problems and their solution.

Psychology and Mental Health: A Contribution to Developmental Psychology. By J. A. Hadfield, M.A., M.B., Ch.B. Cloth. $2.75. Pp. 444. The Macmillan Company, 60 5th Ave., New York 11; George Allen & Unwin, Ltd., Ruskin House, 40 Museum St., London, W.C.1, 1950.

This book reflects the concepts and practice of an experienced worker in the field of medical psychology, as well as the sub*stance of certain lectures given by him in the course of 20 years* at the University of London. The author deals primarily with psychopathology and the causes of mental disorder, as they relate to mental health. He confines himself to that segment of psychiatric inquiry pertaining to the psychoneuroses and behavior disorders, since in his judgment these are derived for the most part from environmental conditions and are therefore more accessible to prevention and cure than the more constitutionally determined psychoses. He lays special emphasis on predisposing causes in early childhood and on the psychology of the individual. He believes that by working out in the individual the causes of disorder and breakdown, clues may be found to causes of neurosis and unrest in the community.

The author's approach is dynamic, influenced by the teachings of Freud, Jung and Adler, but considerably modified by convictions based on his clinical practice. It is his thesis that the basic cause of the psychoneuroses is the feeling of deprivation of love, the need for protective love and security being in fact of far greater importance than repressed sexuality. This feeling of deprivation gives rise to morbid reactions—anger, self pity, hate, power fantasy, depression and pride—which are then repressed in favor of a moral superego, with resulting dissociation of personality and the emergence of psychoneurotic symptoms. The author attempts to show how this mechanism operates in the major clinical pictures—psychosomatic disorders, traumatic neuroses, hysteria, anxiety states, anxiety hysteria, obsessional neuroses, personality disorders and sex perversions and aberrations. In the process of treatment, he accepts in the main Freud's concepts of conflict, repression and projection and the use of free association. Free association, rather than dreams, is the gateway to the forgotten past. He avoids the process of transference as being neither necessary nor desirable and concentrates on direct, reductive analysis. This consists of going back to the original experience which gave rise to the repressed emotions, releasing the latter toward the person or experiences to whom or to which they properly belong, with subsequent redirection to useful ends. This is a provocative and rewarding book, effectively organized and presented, which contributes much to the cause of a more practical, middle-of-the-road, analytic psychiatry.

Sexual Fear. By Edwin W. Hirsch, B.S., M.D., Attending Urologist, Englewood Hospital, Chicago. Cloth. $3. Pp. 307. Garden City Publishing Co., Inc., Garden City, New York; 14 W. 49th St., New York 20, 1950.

Because the author uses a hopeful, encouraging approach in the chapters dealing with specific sex-linked fears, this book is well suited for the average lay reader. In the first six chapters, sex life and the development of sexual fears are traced historically from Babylonian days down through the Middle Ages to provide a background of understanding in relation to modern attitudes on sex. The first widespread recognition of syphilis with the siege of Naples in 1494 is described in an interesting discussion that includes other theories regarding the actual origin of this venereal disease.

Considered in the next six chapters are subjects of common discussion and all too frequent misunderstanding, including frigidity, the male change of life and impotence, this last chapter being enlivened with numerous specific case reports presented in nontechnical terms. This method is employed to some extent also in the final chapter, treatment of sexual fear by psychomatics, a term coined by the author to designate his system of investigating and correcting disordered sexual function due primarily to sexual fear. Psychomatic refers, Hirsch explains, not only to the mind, body and environment but also to "influences" outside and within the self. An extensive bibliography is provided for the reader interested in source material. Physicians should find this volume satisfactory for recommendation to patients with sexual maladjustments. It does an effective job of correcting the many ignorant conceptions concerning sexual function.

Genito-Urinary Surgery. By Sir John Thomson-Walker, D.L., M.B., C.M.Ed., Consulting Urologist, King's College Hospital, London. Third edition edited by Kenneth Walker, M.A., M.B., B.C., Urologist, Hornsey Central and Dartford County Hospitals, London. Cloth. $15. Pp. 956, with 340 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33rd St., New York 16, 1950.

This has been regarded as an outstanding textbook in urology since it was first published in 1914. The author was one of the most competent urologists of his time, and his thorough knowledge and wide experience are well reflected in the pages of this book. The present edition maintains the general excellence of the original volumes. Although the editor has attempted to bring the material up to date, it is evident that many of the recent developments in urology have not been included. It will be noted that but few of the references given at the end of the chapters were dated after 1935. This deficiency is apparent in the chapter on genitourinary infection and its treatment. There should be a more extensive discussion on the use of sulfonamides and the antibiotic preparations now in common usage. The chapter on the various methods of prostatectomy is inadequate. A more complete consideration of recent developments in this field, including transurethral prostatic resection, would be desirable. Errors may be noted in the discussion of the historical development of several urologic procedures, as, for example, in the origin of excretory urography. The book remains as one of the standard textbooks in urology and deserves a place in a representative medical library.

Die Leptospirose: Eine kurze Darstellung für Arzte, Tierärzte und Gesundheitsbehörden. Von Prof. Dr. med. W. Rimpau. Monographien der "Medizinischen Klinik," Heft 8. Paper. 10 marks. Pp. 157, with 15 illustrations. Urban & Schwarzenberg, Thierschstrasse 11, Munich 22; Meinckestr. 13, Berlin W. 15, 1950.

This monograph contains an introduction and chapters on the morphology and biology of the Leptospiras; immunology, distribution, clinical aspects, pathology, epidemiology, and prevention and treatment of leptospirosis. The first part of the book, which is devoted to the causative organisms, contains much valuable information on observations made in central Europe and, before the war, in the Far East, while North American, Spanish, Latin-American and postwar Dutch publications are either disregarded totally or utilized only to a small extent. The clinical picture of leptospirosis is classified as leptospiral fever, renal form, hepatic form, meningitis, hepatorenal syndrome, bronchopneumonic form and the questionable chronic form. Fifteen fever curves illustrate the course of the disease. The symptomatology and pathology of the disease are discussed *to some length without any reference to information avail*able in standard American texts. The chapter on epidemiology contains a number of interesting observations made in Germany and Switzerland, especially on the relation of soil, temperature, moisture and leptospirosis in animals. The therapeutic recommendations are up to date, although one could add much to the description of prophylactic measures. The book was carefully printed on good paper.

Researches on the Radiotherapy of Oral Cancer. By Constance A. P. Wood and J. W. Boag. Medical Research Council, Special Report Series No. 267. Paper. 12s.6d. Pp. 148, with 77 illustrations. His Majesty's Stationery Office, York House, Kingsway, London, W.C.2, 1950.

This is a special report of a study of the Radio-therapeutic Research Unit. The purpose of the study was to compare the effectiveness of a radium beam unit with roentgen therapy at 185 to 200 KV in causing tumor regression. The report is in three sections. The first section compares the results of treatment with the beam unit and roentgen therapy of cancers of the mouth and throat. A number of patients were treated on one side with the beam unit and on the other with the roentgen therapy unit, for comparison of the skin reaction in the same patient. The second section deals with serial biopsies of oral carcinoma as an aid in obtaining prognosis and response to radiotherapy. The third section presents a statistical analysis of the response to treatment of 641 patients treated in the unit who were suffering from cancer of the mouth and throat. A statistical method of estimating the final results of a clinical experiment before long term survival figures become available is also described. The report is well written. Detailed data are given on the content of the studies. It should serve as an excellent reference. Numerous figures and tables are included. Of the 30 plates, four are in color. One of the author's conclusions is that, if the glandular region were to receive a dose of the same order as the primary lesion, the glands would offer no greater resistance to irradiation than the primary lesion.

Administration of Schools of Nursing. By Dorothy Rogers Williams, M.A., R.N., Lecturer, Administrator of Schools of Nursing and Nursing Services, Frances Payne Bolton School of Nursing, Western Reserve University, Cleveland. Edited by Isabel M. Stewart, M.A., R.N. Cloth. $4. Pp. 288. The MacMillan Company, 60 Fifth Ave., New York 11, 1950.

This book, devoted to the administration of schools of nursing, does not attempt to include the administrative functions of the related field of hospital nursing service. It is purposely restricted to educational activities and to the changing pattern of nursing education, which today requires more and more the full attention of those who direct the training of the professional nurse. Beginning with the basic concepts of organization, the author describes in clear and logical manner the present trends in the organization of collegiate and hospital schools of nursing, the relation of the controlling groups, the selection and administration of the faculty, administrative planning for the recruitment and guidance of student personnel, student health, organization of the curriculum, teaching methods, costs and sources of income, school publicity, professional and legislative relations, accreditation of training programs and the qualifications and preparation necessary for the nursing school administrator.

The purpose of the many details of organization and administration described in this book is to aid the directors of individual schools to develop and maintain sound educational programs in keeping with the changing pattern of professional nursing standards. To this end the book will be of valuable assistance to nurses already directing schools and to those who are preparing themselves for administrative duties. It will also be welcomed by hospital directors, physicians and others who may be closely associated with nursing schools in an administrative or advisory capacity. The reader will find a helpful summary at the end of each chapter as well as an extended list of publications for further reference.

Woman's Surgeon: The Life Story of J. Marion Sims. By Seale Harris, M.D. With the Collaboration of Frances Williams Browin. Cloth. $5. Pp. 432, with illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1950.

This biography of Marion Sims, the father of modern gynecology, is a fascinating story of a great man written by one of his admirers. The author is a distinguished physician, teacher and investigator as well as a fellow Southerner, who first became interested in Sims when he was only 15 years old. He drove his father, who was a physician, on his daily rounds and listened to the biography of Sims. Dr. Harris' interest in the "woman's surgeon" continued over the years, and this biography is the result of much study and investigation.

Marion Sims was a frail youth born in a well-to-do family. He had no particular interests. His father urged him to study law, and his mother was anxious that the sensitive youth should become a preacher. However, neither of these professions intrigued him, and he studied medicine reluctantly and with little enthusiasm. The first years after graduation were uninteresting and unrewarding. The highlight of this period was his marriage to his childhood sweetheart, who gave him much encouragement in his life's work and remained his faithful partner and helpmate all his life. He finally settled in Montgomery, Ala., where he soon developed an interest in surgery, for which he had much innate ability. His interest was aroused in the wretched complication of vesicovaginal fistula, a common occurrence because of the poor obstetric care. He found this condition in three of his slaves, and these unfortunate women were the willing and trusting victims for 30 attempts at the repair of their fistulas. His persistence, hard work and the use of silver wire for suture effected a cure in one of his patients after 29 failures. Knowledge of his surgical prowess soon spread throughout the South, and he developed a large practice. However, the weather and the recurrence of a chronic ailment for which he had to spend long periods in bed finally decided him to liquidate his interests in Montgomery and move to New York.

The weather and the professional environment worked wonders for Marion Sims. He soon acquired a large practice, because his reputation had preceded him. There were many women, rich and poor, who had sustained childbirth damage or who had other pelvic complications which he could cure. He was a brilliant surgeon and had a special talent for developing new instruments and technics to make his surgery more spectacular. He succeeded in recruiting some of his wealthy patients to help him build a hospital for women's diseases. The Woman's Hospital soon became a mecca for visiting doctors from everywhere. Much of the early history of gynecology was written here by Sims and his early disciples, Emmett, Thomas and Peaslee. He considered the institution his own creation and his home. He soon began the practice of spending longer and longer periods in Europe, and he gained loyal followings in Paris and London. His consulting rooms were filled with international celebrities, including many women from the royal families of Europe. Because of constant arguments with his colleagues and the board of governors of the hospital, his late years were unhappy. In a fit of temper he resigned from the hospital staff, a decision he regretted promptly, but his resignation was accepted. This was a blow from which he never recovered. The author has done a magnificent job in picturing the "woman's surgeon" as a genius in American medicine and yet a human with many human failings. He was selfish; he loved fame and power, and yet he was a kindly man ready to do everything possible for the less privileged. Every physician will enjoy this biography for leisure reading.

Die Wirkungseinheit des Lebens: Eine Einheits-, Spezial- und Ganzheitsbetrachtung der Lebensvorgänge unter normalen und krankhaften Bedingungen. Von Dr. med. Ludwig Seitz. Cloth. 33 marks. Pp. 500, with 54 illustrations. Urban & Schwarzenberg, Thierschstrasse 11, München 22; Meinekestr. 13, Berlin W. 15, 1950.

As indicated in the title, the author has attempted to define the common denominator of all living processes under normal and pathological conditions. He attempts to do for biology what Einstein with his theory of relativity did for physics. That he has not succeeded in reaching this goal is not surprising when one considers how remote from mathematical expression most biologic phenomena are. The author examines, albeit superficially, a wide domain of biologic knowledge, including topics such as the unicellular organism, cosmic and biologic rhythms, the cell as a chemical laboratory, chemical and biomorphological structures, genetics, the gonads, chemohormonal factors in pregnancy, the reflexes, Cushing's disease, the role of the vegetative nervous system in somatic disease, the psyche and a comparison of the modern state and cellular organism. To one philosophically inclined, this range of subject matter will present many points of interest. However, despite the author's constant repetition that all living processes have a common basis, the reader is left with the tantalizing thought that the essence of life cannot be expressed by any simple formula, as promised by the author in his preface. References to the literature are sparse and not critical; the illustrations are schematic drawings which oversimplify and mechanize the physiological principles which they illustrate.

Chemotherapie der Tuberkulose mit den Thiosemikarbazonen. Von Gerhard Domagk. Unter Mitarbeit von C. Arold, et al. Cloth. 60 marks; $14.30. Pp. 405, with 257 illustrations. Georg Thieme Verlag, Diemershaldenstrasse 47, (14a) Stuttgart-O; Agents for U. S. A.: Grune & Stratton, Inc., 381 4th Ave.; New York 16, 1950.

This German volume is the result of studies initiated in the hope of establishing a chemotherapy for tuberculosis. Experimental tests were performed exactly and were intended to build a causal therapy for tuberculosis similar to those for other bacterial infections. With the basic acknowledgment of differences between animal experiments and the treatment of tuberculous man, it was recognized that if the semicarbazones, whose specific action was demonstrated in 1946, could affect a human type of tuberculous infection in the highly susceptible guinea pig, such materials in harmless doses might prove useful in the various forms of tuberculosis in man. While the action of streptomycin is conspicuous in guinea pig tuberculosis, paraaminosalicylic acid (PAS) is poorly tolerated by these animals and is not as acceptable as the semicarbazones, even though it is tolerated better in less susceptible species. Thus the possibility of a causal therapy of tuberculosis exists.

This volume consists of a series of 14 monographs by various authors which to a great extent originally appeared in German periodicals. It is concerned primarily with the results obtained with amithiozone (Tb. 1-698). The initial chapters occupy 141 pages and were written by Domagk, who introduced amithiozone. They include monographs on the bacteriology of the tubercle bacillus, especially its culture and determination, followed by the pathology of tuberculosis in man and, finally, the chemotherapy of tuberculosis, particularly the new semicarbazones. Consideration is given to streptomycin, paraaminosalicylic acid and amithiozone, with the conclusion that amithiozone is second to streptomycin in value and possesses certain advantages, such as length of use and the nondevelopment of resistance by the bacilli. Favorable results from the use of amithiozone are recorded in lupus by Kalkoff, in mucous membrane (upper respiratory tract) tuberculosis by Arold, in lymph gland disease *and intestinal tuberculosis by Kuhlmann and Knorr, in urogenital* tuberculosis by Boshamer, in bone and joint tuberculosis by Ullmann, in pulmonary tuberculosis by Klee, Melzer, Rühs, Köthe and Jahnke, and Kuhlmann and Lemberger, and in cavernous tuberculosis (local application) by Malluche. In the final monograph, Heilmeyer cites beneficial results from the use of amithiozone in nontuberculous cases, especially chronic rheumatoid arthritis, and records a study of the plasma colloids with this treatment. Though the results cannot be judged to be anything more than beneficial, the monographs disclose an exhaustive study of a new chemotherapeutic compound applied both experimentally in animals and for treatment in man. Although one may not agree entirely with some of the conclusions, the monographs present sufficiently detailed records for the reader to be able to make his own conclusions.

That such a study should emanate from a country decimated so recently by war is astonishing, and yet this volume is doubly interesting in that professional and scientific persons could not be stifled completely, regardless of the political situation. In view of the excellence of the presentation of these monographs and the high quality and durability of materials, even a critical reviewer must conclude that they contain much to stimulate study and to guide future chemotherapeutic possibilities in tuberculosis. The volume presents scientific information and, as such, merits particular consideration for possible corroborative evaluation and productive elaboration.

The Respiratory Function in Laryngectomized Patients. By Rutger Heyden. Acta otolaryngologica, Supplementum LXXXV. Paper. Pp. 76, with 35 illustrations. Lund, 1950.

This magazine supplement, dealing with respiratory function in patients subjected to laryngectomy, is based on an investigation of 44 patients treated for cancer of the larynx during the period 1940-1949 at the Karolinska Sjukhuset in Stockholm, Sweden. The author made spirometric determinations of lung volume and studied respiration with work tests on a bicycle ergometer. Two thirds of the patients examined were able to perform physical work; 58 per cent of them rarely had respiratory infections. The subjects who had undergone laryngectomy appeared to have a somewhat low pulmonary vital capacity.

Biochemical Aspects of Genetics: A Symposium Held at the Westminster Hospital Medical School, London, on 12 February 1949. Organized and edited by R. T. Williams. Biochemical Society Symposia No. 4. Paper 6s; $1.50. Pp. 60, with illustrations. Cambridge University Press, Bentley House, 200 Euston Rd., London, N.W.1; American Branch: 51 Madison Ave., New York 10, 1950.

The symposium, according to one of the speakers, gave a clear demonstration of the connection between genetics and biochemistry in the interpretation of biochemical mutations. The basic concept of the current hypothesis for such mutations is recognition that the genetic abnormality consists of a blocking of a normal metabolic pathway owing to the absence or decrease in concentration of a specific enzyme. Garrod, early in this century, pioneered the work in this field in his study of ochronosis and other inborn metabolic disorders. Discussions on genetic control of biochemical synthesis, chemically induced mutations, gene action and mutation, biochemical genetics of micro-organisms and adaptation, mutation and segregation in the formation of bacterial enzymes are included among the various aspects of the subject.

Le Cancer du corps utérin. Publié sous la direction de P. Chalnot. Avec la collaboration de M. Beau, et al. Questions gynécologiques d'actualité. Pp. 247, with illustrations. L'Expansion scientifique française, 23, Rue du Cherche-Midi, Paris 6e [n.d.].

This is a remarkably complete discussion of all phases of endometrial cancer, with emphasis on newer methods of treatment, by 16 French physicians. The book proceeds logically from an anatomic consideration of the uterus, with emphasis on the lymphatic system, through pathology, possible etiological factors in endometrial cancer, methods of diagnosis, including newer methods of hysterosalpingography (a debatable procedure, but apparently useful in the hands of experts), to treatment.

Emphasis in treatment in the past has been on adequate irradiation, particularly with radium. This is well covered in *the present volume. Considerable emphasis is also laid on surgi*cal therapy and on combined irradiation and hysterectomy. The advantages and disadvantages of all procedures are discussed, and statistics drawn from studies made all over the world are presented to show that, in the hands of the authors, combined surgical-irradiation therapy offers the best results. The data on which this conclusion is based must be scrutinized with some care. Whether any series of cases is comparable to any other series of cases is difficult, at best, to determine; and when many of these series are obtained from the literature, it becomes almost impossible to judge their comparability. Despite these statistical drawbacks, it does appear that the French have had good success with a combination of irradiation and hysterectomy in treating endometrial cancer. The data are well presented, and considerable detail regarding procedure is given. Anyone interested in gynecologic surgery or in tumors will find this volume of interest.

Clinical Pathology: Application and Interpretation. By Benjamin B. Wells, M.D., Ph.D., Professor of Medicine, University of Arkansas School of Medicine, Little Rock, Arkansas. Cloth. $6. Pp. 397, with 32 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1950.

This book is written by a well qualified internist for clinicians, pathologists and medical students. It does not present discussions on technics but offers information on the use and evaluation of laboratory procedures in relation to clinical medicine. Included are chapters on laboratory studies in the surgical and obstetrical fields. Dr. Wells writes, "The practitioner must know at least three things about every laboratory procedure he expects to use: (1) when to use it, (2) how to interpret the results and (3) what technical or physiologic limitations must be taken into account in the interpretation." The procedures covered in the book are available to most physicians. The volume is handy in size and well printed. The views expressed by Dr. Wells are in agreement with those generally held. The book is well written.

The Microscopic Diagnosis of Human Malaria. Part I: A Short Descriptive Atlas of Thick-Film Diagnosis. By John W. Field. Studies from the Institute for Medical Research, Federation of Malaya, No. 23. Paper. $5. Pp. 117, with 81 illustrations by Yap Loy Fong. H. T. Ross, Government Printer, Kuala Lumpur, 1948-1949.

This atlas is for the diagnosis of those types of human malaria encountered in Malaya, including Protozoa falciparum, P. vivax and P. malariae. It includes short accounts of the life histories of the malaria parasites, detailed systematic descriptions of each parasite in lysed, Romanowsky-stained thick films and technical procedures for preparation, staining and examination of the material. It is well illustrated with composite original drawings made with the aid of the microscope and the camera lucida from films stained by Giemsa's or Romanowsky's method. Unfortunately, costs and technical difficulties in Malaya prevented the use of color.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

BLOOD PRESSURE OF MORE THAN 300

To the Editor:—An 89 year old white man with arteriosclerosis was seen in 1939 with what was thought to be coronary occlusion, from which he made an uneventful recovery. In April 1950 cardiac decompensation was noted, with a rapid regular rate, edema of the legs, enlarged heart and no murmurs. I could not determine the blood pressure in either arm, nor could I obliterate the radial pulse with a mercury manometer raised to 300 mm. Blood pressure in the legs was not obtainable because of edema; there was no pulsation in the dorsalis pedis artery. Roentgenograms of both arms showed considerable calcification in both brachial arteries. My theory is that these arteries are so calcified that it is impossible to compress them with the blood pressure cuff. Two older internists of wide experience have not encountered this condition, and I am unable to find in the literature anything relative to such a condition. How is blood pressure in the leg properly determined, and what are considered normal values?

M.D., Minnesota.

ANSWER.—It is doubtful whether the failure to obliterate the pulse with a cuff pressure of 300 mm. of mercury is due to the rigidity and incompressibility of sclerotic arteries. One may be almost certain that the systolic tension is actually over 300 mm. of mercury. Levels as high as this, though unusual, are not exceptionally rare. There should be no significant risk in applying greater pressure with a special manometer. Such excessively high levels are not incompatible with the advanced age of the patient.

No mention is made in the query as to any change in note (phase 4) or disappearance of sound (phase 5) as the tension in the cuff is reduced. If one assumes this patient's systolic tension to be somewhere between 300 and 400 mm. of mercury, a diastolic pressure of 150 to 200 should be expected. Anything lower would suggest aortic valve incompetence and regurgitation. The diastolic tension cannot be determined by palpation.

The arterial tension in the legs may be difficult to measure. A wider cuff is needed around the thigh. Sounds in the popliteal space are often very faint, especially when obesity or edema occurs. However, except in cases of coarctation of the aorta, the tension in the legs is 20 to 50 mm. higher than in the arms, when measured with the patient in the recumbent position. If tension is determined with the patient standing erect, the difference is even greater, because of the increased hydrostatic pressure. Readings of tension which are lower in the legs than in the arms are pathognomonic of coarctation of the aorta.

PREOPERATIVE TREATMENT FOR CESAREAN SECTION

To the Editor:—I would like the opinion of (1) anesthesiologists and (2) obstetricians with regard to preoperative medication for cesarean section and especially concerning its use with spinal anesthesia. Is 1/6 grain (0.01 Gm.) morphine sulfate and 1/150 grain (0.44 mg.) scopolamine hydrobromide excessive as preoperative medication if given one hour preoperatively to a 125-130 pound (57-59 Kg.) pregnant woman who has a cephalopelvic disproportion? What are the effects on the infant of these drugs as given preoperatively? Should barbiturates be used?

M.D., New Jersey.

ANSWER.—The anesthesiologist does not feel the need for the preoperative use of morphine and scopolamine when spinal anesthesia is to be used, if the anesthesia is adequate by itself for the obstetric patient in labor. Use of these agents, moreover, is undesirable from the point of view of interference with spontaneous respirations in the newborn. The more cephalopelvic disproportion the patient may have—or in other words, the more prolonged the delivery—the less desirable it is for the infant to be subjected to the effect of morphine and scopolamine hydrobromide. It is true that a barbiturate, used in a small dose, is less undesirable than morphine and scopolamine hydrobromide, yet it is undesirable to have a noticeable barbiturate effect produced in the mother, because the newborn will not breathe as spontaneously as he or she would have done without medication. For elective cesarean section, 50 or 100 mg. of meperidine (demerol®) hydrochloride has proved satisfactory and less depressive for the infant than morphine or barbiturates would be. If a barbiturate is used peroperatively in cesarean section, it is preferable to keep the dose to 1½ grains (90 mg.) of pentobarbital sodium (nembutal®).

CLOTTING TESTS BEFORE TONSILLECTOMY

To the Editor:—Is there any reason to continue the performance as a routine procedure of the clotting and bleeding time tests for tonsillectomy in children?

Lazaro Benavides, M.D., Mexico, D. F.

ANSWER.—Routine evaluation of the clotting and bleeding time prior to tonsillectomy in children may reveal an unsuspected hemorrhagic disease. In hemophilia the coagulation or clotting time is usually prolonged; in the various types of purpura the result of this test is usually normal. In thrombocytopenic purpura the bleeding time is usually prolonged, while in hemophilia it is normal. Probably there are children with a bleeding tendency who do not fall into these categories whom it might be well to detect before operation. Determination of the clotting and bleeding time is the only way in which such tendencies might be discovered before operation.

In most of the leading children's hospitals, the temperature, pulse and respiration rates are noted and a urine specimen is examined prior to operation. Formerly it was also common for specialists to obtain roentgenograms of the chests of the children prior to tonsillectomy in an attempt to ascertain whether an enlarged thymus gland was present, which might result in a fatality from an anesthetic or the operation. This examination has been largely discontinued.

GENERALIZED CONVULSIONS

To the Editor:—On an airplane trip home from my fifteenth college reunion a week ago I felt sleepy as we started to land at Dayton. I woke up to learn from the hostess that I had had "a generalized convulsion which lasted about three minutes, during which "your pulse rate was about 120." A physician boarded the plane, took my blood pressure, listened to my heart, then asked that I be given a dimenhydrinate (dramamine) tablet and ¼ grain (15 mg.) of phenobarbital. He stated that he found nothing abnormal. I felt fine save for the fatigue which one expects after such vigorous conviviality with school mates. I awoke in my own bed about 15 hours after this experience to find my wife in hysterics and a physician neighbor drawing blood from my vein. I felt rested, but was told that I had again had a convulsion. Two neurologists found no evidence of disease. An electrocardiogram showed a 7 second rhythm; I had taken three pentobarbital capsules (0.28 Gm. total) at bedtime, seven hours before the electrocardiogram was taken, and also before the convulsions. I am 37. The only thing in my history worthy of note is that I have a large cranium and I like soft drinks. Laboratory studies show nonprotein nitrogen 34 mg., blood sugar 108 (as the attack subsided) and eosinophils 8 per cent.

M.D., Pittsburgh.

This inquiry was referred to two authorities, whose respective replies follow.—ED.

ANSWER.—It would be a serious mistake to pass off these two generalized convulsions lightly or to attribute them to some relatively innocuous agent such as pentobarbital. Pentobarbital, even in fairly large doses, does not give rise to convulsions. The situation demands thorough investigation from a neurological and neurosurgical standpoint. The inquirer should place himself under the care of some neurologist or neurosurgeon and follow his recommendations.

ANSWER.—Although the 8 per cent eosinophil count is somewhat suggestive of the presence of allergy and the episodes presented have been on rare occasions claimed to be due to allergic causes, it would be presumptuous and hazardous to consider allergy the most important cause. It is decidedly more important that this condition be investigated from the neurologic, psychogenic, vascular or other medical approach.

ELECTROSHOCK TREATMENTS

To the Editor:—A patient had a series of electroshock treatments concurrently with subshock doses of insulin. She has heard that this form of treatment shortens a person's life and causes permanent physical damage. Is there any evidence to disprove this belief?

M.D., Arizona.

ANSWER.—Numerous brains of both man and animal have been examined after electroshock treatments, and there has been no significant change found in the architecture. The same is essentially true with insulin shock, particularly the subshock variety. Occasionally in either, oftener with insulin, there are a few changes in and about the blood vessels, some glial changes, but no significant permanent damage.

Fractures of bones, essentially mild compressions of the vertebrae and rupture of muscles do occur, but they, too, are inconsequential. When the bones are osteoporotic the vertebral column should always be examined roentgenographically before treatment. Treatment may be pursued with the use of curare or curare-like substances to avoid the violent convulsion.

The electroshock treatment appears to have no effect on a normal heart. Patients with severe myocardial damage have been treated successfully without any untoward effect on the heart. Here the decision depends on the circumstances. When the patient is literally thrashing himself to death, it becomes a life-saving, hence justifiable, risk. When a patient known to have cardiac damage develops a psychosis which is resistant to all conservative therapy and shock treatment is necessary, treatment may go on, with curare used as mentioned above or a sedative like a barbiturate given intravenously. This moderates the convulsion. Curare supervised by a competent anesthetist is preferred. This, of course, means having available a mechanical respirator, and, if necessary, neostigmine. Occasionally death occurs from myocardial infarction.

After intensive electroshock treatment the patient has a sense of memory loss. The actual period of treatment frequently is an island of blankness. Spontaneous memory seems to be more affected than that of learned didactic material; yet after a few months the patient seems to recapture everything but the period of treatment. All except those who had previous organic brain damage are able to return to their pre-illness status, or occupation, if the electroshock was effective. Subshock with insulin combined with electroshock adds no further changes except that the deep confusion often associated with intensive electroshock treatment comes on more slowly and clears more rapidly.

EPILEPSY AND OSTEOGENESIS IMPERFECTA

To the Editor:—A 9 year old boy has had osteogenesis imperfecta of the congenital type. He sustained his first spontaneous fracture at the age of 9 months and since then has had eight more fractures. The last of these, a year and a half ago, followed sufficient trauma to cause the fracture of a normal bone. We believe that this condition is now in remission. In addition, from 1944 to 1947 the child had 17 grand mal type convulsions, some following febrile illnesses. He has been studied at a reputable clinic, and it was considered that he suffered from idiopathic epilepsy. Electroencephalograms of the father showed an epileptic pattern, though he has never had frank convulsions. The paternal grandfather suffered from some type of convulsive disorder. There is no other history of spontaneous fractures among either parents or grandparents, nor have I seen any other family members who had blue scleras. The parents of this boy want another child. They have received conflicting advice from several sources. What is your recommendation?

M.D., South Carolina.

Answer.—Many pedigrees are on record showing a high incidence of osteogenesis imperfecta among both close and distant relatives; in some families it has appeared in as many as five generations. Epilepsy is not always inherited. In the case just cited, however, it would appear to be familial in origin. Again, as in the case of osteogenesis imperfecta, there are many family trees on record which reveal numerous cases of epilepsy among blood relatives. The existence of either of these diseases alone should be a sufficient contraindication to future childbearing.

HIRSUTISM

To the Editor:—A woman aged 35 complains of having to shave twice daily because of a beard of coarse hairs, increasing since onset six years ago. There are no other masculinizing signs, such as change of voice, temperament, enlargement of the clitoris or male distribution of pubic hair and no menstrual changes. The patient blames her hirsutism on progesterone, of which she received a total of three injections of 10 mg. each at monthly intervals prior to the appearance of the hair. Can you refer me to scientific studies which confirm or disprove this contention?

M.D., California.

Answer.—There are no data in the literature which suggest that the administration of progesterone causes hirsutism. The patient should be carefully studied to determine whether she has a masculinizing tumor. The simplest laboratory test is a determination of 17-ketosteroid excretion in the urine. If the value is within normal limits, it is probable that no masculinizing tumor is present.

REFRACTION DURING PREGNANCY

To the Editor:—Should a refraction of the eyes be postponed merely because a patient is pregnant?

Gilbert C. Norton, M.D., Endicott, N. Y.

Answer.—There are no significant ocular changes in normal pregnancy that influence errors of refraction. Refraction should not be postponed merely because a patient is pregnant.

POOR LACRIMAL DRAINAGE IN INFANT

To the Editor:—A male infant, 14 months of age, has had faulty drainage of tears in his right eye since birth. An ophthalmologist has probed his lacrimal duct twice, with apparently no results. What is recommended to correct this condition?

Abe L. Feuer, M.D., Dallas, N. C.

Answer.—A special form of lacrimal disease is occasionally seen in infants after the first few days of life. If development of the lacrimal duct is not complete at birth, the condition soon manifests itself by epiphora and slight mucopurulent discharge from the eye. The fact that the conjunctiva is not inflamed is usually sufficient to establish the diagnosis. The lacrimal sac may become distended from retention of tears and secretion, and sometimes dacryocystitis may result. The condition is often self limited, or one may relieve it by pressing the sac and forcing its contents into the nose, thus establishing the patency of the duct. This type of obstruction, which is an epithelial plug or membrane, does not tend to reform. If this method is not successful, syringing the passages or passing a lacrimal probe will usually relieve it. Frequently only one probing is required but several probings may be necessary.

FATIGABILITY

To the Editor:—A white man, aged 48, has a low systolic blood pressure, namely, 90/65. He has no complaint except fatigability. The blood pressure several years ago was 110/70. He has been taking 5 mg. of d-amphetamine sulfate in the morning and at noon without any effect on the blood pressure. What else would you recommend? Laboratory tests revealed no abnormalities.

M.D., Wisconsin.

Answer.—This patient is fortunate. With blood pressure at such a level his statistical chances of outliving those with pressures slightly above average normal are good. His fatigability is almost surely not due to the height of the arterial pressure and probably indicates that the patient requires more frequent, if less prolonged, periods of rest. No medication is required, but the patient must be convinced of his superior rather than inferior vascular status.

WHITE FINGER NAILS SINCE BIRTH

To the Editor:—The nails of an 18 year old girl have been white on the tip end (the protruding portion) since birth. Can you explain this?

M.D., Kentucky.

Answer.—The young woman apparently has leukonychia. This condition appears most often in one or more nails in the form of white punctate or transverse striae, but occasionally the entire nail may be involved or a portion of it, and the involvement may be symmetric or asymetric. Usually the finger nails are affected, but the condition has been observed also in the toe nails. The whiteness is likely due to imperfectly cornified cells with the presence of granules of keratohyalin, due to a functional disturbance of the ungueal matrix, trophic disturbances or even trauma. Trauma, as from manicuring, is frequently blamed for leukonychia, but congenital-familial cases have been observed. In many cases the cause remains unknown.

ODOR OF URINE AFTER EATING ASPARAGUS

To the Editor:—Eating of asparagus seems to be followed by the excretion of malodorous urine. What causes this odor? Some have said that asparagus "purifies" the kidneys. I cannot understand such reasoning.

Irving I. Crouse, M.D., Buffalo.

Answer.—The odor which appears in the urine after the ingestion of asparagus is due to the volatile sulfur compound methylmercaptan, which is formed as a breakdown product of the asparagin found in asparagus. This odor may persist for 12 to 20 hours and has been mainly responsible for the belief in the diuretic properties of asparagus. However, there is at present no sufficient reason for the belief that asparagus is of value in practical medicine. Because of its purin content, it is especially contraindicated for patients with gout.

LOW DIASTOLIC PRESSURE IN YOUNG PATIENTS

To the Editor:—In Queries and Minor Notes in *The Journal* of Oct. 7, 1950 (page 512) the cause of very low or zero diastolic pressure is discussed. I should like to add a point that may explain many of such readings. While one is listening for the disappearance or change of the systolic sound while the pressure cuff is being deflated, pressure with the bell or diaphragm of the stethoscope over the brachial artery will often cause a partial occlusion of the blood vessel. This has the same effect as a partially inflated cuff. One will then hear the pulsation of the blood even when the air cuff is completely deflated. This is particularly true in young persons or those with elastic arterial walls. Therefore, when one obtains a very low diastolic reading, merely easing up on the pressure with which the stethoscope is applied to the artery will result in complete disappearance of a "low diastolic pressure."

Isadore Pitesky, S.B., Medical Student,
University of Illinois, Chicago.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 144, No. 14 CHICAGO, ILLINOIS DECEMBER 2, 1950

COPYRIGHT, 1950, BY AMERICAN MEDICAL ASSOCIATION

NEUROLOGIC MANIFESTATIONS ASSOCIATED WITH DISSECTING ANEURYSM OF THE AORTA

Chairman's Address

FREDERICK P. MOERSCH, M D.
and
GEORGE P. SAYRE, M D.
Rochester, Minn

The historical development of present knowledge concerning dissecting aneurysm of the aorta is a fascinating tale dating back to the sixteenth century. Familiar personages from the pages of history add color to the story. Vesalius,[1] Morgagni,[2] Nicholls,[3] Laennec,[4] Pennock,[5] Peacock,[6] Cruveilhier,[7] Sainet,[8] Swaine and Latham[9] and others have left their lasting imprint on this interesting saga. That the affliction maimed not only the plebeian but the monarch may well have aroused more than passing interest in the early study of the problem. Thus, Nicholls[3] in 1761, reporting before the Royal Society of London on the death of King George II, gave "a minute detail of what occurred on that remarkable and melancholy occasion." Nicholls went on to say, "His Majesty was found fallen on the ground, speechless and motionless He appeared to have just come from his necessary stool " At necropsy a dissecting aneurysm was demonstrated in the aortic arch.

That the clinical diagnosis of dissecting aneurysm of the aorta was of an elusive nature is given weight by quoting from Peacock,[6] who stated in 1843: "Nor are the symptoms which attend its formation and progress such as can be regarded as characteristic of the affection." If history is correct, the first antemortem diagnosis of dissecting aneurysm of the aorta recorded in literature was made by Swaine and Latham[9] in 1855.

Nearly another century had passed when Shennan,[1] in 1934, in a monumental work painstakingly analyzed the then recorded cases to the number of 300. His scholarly work summarized the known pertinent facts concerning dissecting aneurysms of the aorta. Interestingly enough, as late as 1908, Osler[10] stated that only two cases of dissecting aneurysm of the aorta had been observed at the Johns Hopkins Hospital in the preceding 16 years. Progress, however, was in the making. By 1944 Weisman and Adams,[11] in a review of 38 cases observed in the preceding 10 year period, reported that a correct diagnosis was made in 55 per cent of the cases and in 80 per cent of those in which there were associated neurologic findings The phenomenal record of correct antemortem diagnosis in 10 of 12 cases as reported by Logue[12] in 1943 is a goal that will be difficult to surpass.

It is not entirely clear to whom the credit belongs for being the first to call attention to the neurologic manifestations associated with dissecting aneurysm of the aorta. In some of the early reported cases in the literature reference is made to signs that undoubtedly indicate involvement of the nervous system Among such reports are those of Sainet[8] in 1851, Swaine and Latham[9] in 1856 and Coleman[13] in 1898, Swaine and Latham and Coleman observing signs of paraplegia in their patients. In spite of these and other reports, Kalischer[14] in 1914 is credited with being the first to emphasize the importance of neurologic complications associated with dissecting aneurysm of the aorta. It is of interest that Oppenheim, in discussing Kalischer's presentation, stated that he had never observed a similar case.

No longer may we look on dissecting aneurysm of the aorta as a rare affliction. It seems a fair statement to say that about one of every 400 to 500 postmortem examinations reveals such a pathologic process. Males are more frequently affected than females, the ratio being from 2 to 3 males to 1 female. The fifth and sixth decades of life appear to be especially vulnerable, though no decade of life is entirely exempt from the affliction. There may be sudden or rapid death from

---

From the Section on Neurology and Psychiatry (Dr Moersch) and the Section on Pathologic Anatomy (Dr Sayre), Mayo Clinic

Read before the Section on Nervous and Mental Diseases at the Ninety Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950

[1] Vesalius, cited by Shennan, T., Dissecting Aneurysms, Medical Research Council, Special Report Series, no 193 London, His Majesty's Stationery Office, 1934, pp 1-138

[2] Morgagni, J B The Seats and Causes of Diseases Investigated by Anatomy, In Five Books, Containing a Great Variety of Dissections, With Remarks, translated from the Latin by B Alexander, London, A Millar & T. Cadell, 1769, vol 1, book 2, p 802

[3] Nicholls, F Observations Concerning the Body of His Late Majesty, October 26, 1760, Phil Tr Roy. Soc London **52:**(pt 1) 265 275, 1761

[4] Laennec, R T. H · Traite de l'auscultation mediate et des maladies des poumons et du cœur, ed 2, Paris, J S Chaude, 1826, vol 2, pp 696 708

[5] Pennock, C W.: Case of Anomalous Aneurism of the Aorta Resulting from Effusion of Blood Between the Laminae Composing the Middle Coat of That Vessel, Am J M Sc **23:** 13 19, 1838

[6] Peacock, T. B Cases of Dissecting Aneurism, or That Form of Aneurismal Affection in Which the Sac Is Situated Between the Coats of the Vessel, Edinburgh M J **60:** 276 302, 1843

[7] Cruveilhier Anevrisme et dechirure de l artere aorte penetration du sang dans le pericarde, in Extrait des proces verbaux des seances de la societe, Bull Soc anat de Paris **24:** 227, 1849

[8] Sainet Une rupture de l aorte a sa naissance, Bull Soc anat de Paris **26:** 25, 1851

[9] Swaine and Latham, P M: Case of Dissecting Aneurism of the Aorta, Tr Path Soc London **7:** 106 111, 1855 1856

[10] Osler, W · Modern Medicine, Philadelphia, Lea & Febiger, 1908, vol 4, p 468

[11] Weisman, A D, and Adams, R D Neurological Complications of Dissecting Aortic Aneurysm, Brain **67:** 69 92 (June) 1944

[12] Logue, R B Dissecting Aneurysm of the Aorta, Am J. M Sc **206:** 54 66 (July) 1943

[13] Coleman, J B · Dissecting Aneurysm, Lancet **2:** 317-318 (Aug 6) 1898

[14] Kalischer Demonstration eines Praparates (Aneurysma dissecans der Aorta mit Paraplegie), Berl klin Wchnschr **51:** 1286 1287 (July 6) 1914

the disease or survival for weeks, months or, in rare instances, years. According to Schnitker and Bayer,[15] the younger age group tends to have a longer duration of the illness. It is generally reported in the literature that 80 per cent of the patients die within a few days and from 80 to 85 per cent succumb within the first two weeks.

TABLE 1—*General Points of Interest*

Sex	Men, 18; women, 8, total: 26					
Age, yr.	Range 30 to 72; average, men, 56.4; women, 51.1					
Decade	4th 3	5th 6	6th 10	7th 4	8th 3	
Duration of illness	Sudden, ½ hour or less 8	One hour to several hours 1	Days 1-7 9	Weeks 2-4 4	Months 2-7 2	Years 2-8 2
Etiology	No single cause	Physical strain: 5; emotional strain: 2				
Previous hypertension	16 patients known hypertension 9 patients presumable hypertension (enlarged heart at necropsy), 1 patient normal blood pressure					

The etiology of the disease, according to the great majority of writers, including Kirkpatrick,[16] Holland and Bayley[17] and others, remains a matter of conjecture. Among the more commonly accepted causes are (1) degenerative changes in the wall of the aorta, (2) congenital defects, (3) mechanical causes, (4) inflammatory reactions and (5) trauma. As stated by Bauersfeld[18] and others, "no single cause can be demonstrated as consistently producing the changes leading to a dissecting aneurysm." According to Schnitker and Bayer,[15] pregnancy appears to play some role in the causation of dissecting aneurysm.

Death in the majority of patients (80 to 90 per cent) is due to an external rupture into one of the body cavities, in order of frequency the pericardial, the thoracic and lastly the abdominal cavity. Ten to 20 per cent of the subjects survive the initial dissection, one half of whom die later from an external rupture. However, as Osler[10] has so well stated, "in a few cases recovery takes place with an illustration of the most remarkable reparative process seen in the human body, the formation of a healed dissecting aneurysm," or, as it is frequently referred to, a "double-barreled aorta."

The diagnosis of dissecting aneurysm of the aorta remains a challenge to the physician. Each patient presents a difficult diagnostic problem, and unless a keen awareness of the symptomatology is entertained, the diagnosis may be overlooked. Under the heading of differential diagnosis, the following conditions come up time and again as important points for consideration: acute cardiac disease, acute cerebral vascular conditions, acute abdominal diseases, acute thoracic or pulmonary diseases, acute affections of the spinal cord such as abscess, hemorrhage, myelitis and finally acute arterial occlusive conditions. It should be kept in mind that occasionally the clinical picture is such that abdominal exploration is carried out because of a mistaken diagnosis. Shennan[1] and Packard and Scott[19] have reported such instances of abdominal exploration.

The clinical picture common to dissecting aneurysm of the aorta is usually of a catastrophic nature. Morgagni,[2] some 200 years ago, emphasized this point in reporting a case: "A woman, of a fat habit of body, of 50 years of age, of a sober disposition, and naturally rather inclined to sadness and taciturnity; . . . being subject to no disease, . . . having risen early in the morning to her work, . . . cried out, 'Oh!' and spoke not another word, but died instantly." In a few instances the affliction may exist unrecognized during life, coming to light only at necropsy. Most authors, such as Shennan,[1] Schlachman,[20] Gager[21] and others, agree that as a rule the dissection of the aorta is ushered in as an acute dramatic episode in which there is sudden violent pain in the chest, back or abdomen with a feeling of impending death or annihilation. The pains tend to migrate in steplike fashion from one region of the body to another, suggesting the course of progression of the dissection. It may be stated that such pains occurring in a middle-aged person with a history of previous hypertension point the finger of suspicion to the presence of a dissecting aneurysm of the aorta. In contrast to what occurs in coronary disease, pains are not frequently experienced in the arms but pains and paresthesia are common in the lower limbs.

The remainder of the clinical picture depends on the nature and extent of the dissection. Among the more important physical signs that are of aid in the diagnosis are the maintenance of a previous high blood pressure in the face of a serious vascular disturbance. The leukocyte count is usually elevated in spite of a normal or only slightly altered temperature, except as a terminal event. Examination of the heart may give but little helpful information. The presence of a cardiac murmur and the appearance of a precordial rub during the course of the illness are of diagnostic importance. The electrocardiogram may show evidence of ventricular strain or other changes, which, however, are not of a specific pattern common to dissecting aneurysm of the aorta. Roentgenographic examination of the chest may reveal helpful information and may even establish the diagnosis. Occlusion of an artery to one of the extremities should not be overlooked. Finally, the presence of neurologic signs is important in establishing the diagnosis.

TABLE 2—*General Medical Findings*

Type of Examination	Cases	Results of Examination
Temperature	14	Usually no elevation of temperature, occasionally high terminal temperature
Leukocyte count	13	Range, 6,800 to 63,000 per cubic millimeter of blood Average, 18,000
Sedimentation rate .... (Westergren)	9	Range, 17 to 138 mm. in one hour Average, 83
Urine examination	12	Albumin, grade 1 to 4 Occasionally red blood cells and casts
Urea	10	Range, 44 to 400 mg. per 100 cc. of blood Average, 106
Examination of heart	13	7 murmur, 3 no murmur, 3 no comment 2 transitory rub
Electrocardiogram ...	13	No specific diagnostic sign
Roentgen examination of chest	16	15 enlarged heart and tortuous aorta, in 4 cases suggested dissecting aneurysm
Examination of fundi	8	6 grade 1 to grade 4 hypertensive changes, 2 with edema, 2 normal
Peripheral vessels	3	2 normal, 1 no pulsation in femoral arteries

---

[15] Schnitker, M. A., and Bayer, C. A.: Dissecting Aneurysm of the Aorta in Young Individuals, Particularly in Association with Pregnancy with Report of a Case, Ann. Int. Med. **20:** 486-511 (March) 1944.

[16] Kirkpatrick, N. R.: Dissecting Aneurysm of the Aorta. Thesis, University of Minnesota Graduate School, 1949.

[17] Holland, L. F., and Bayle, R. H.: Dissecting Aneurysm: A Report of Nineteen Cases, with a Review of the Recent American Literature, Am. Heart J. **20:** 223-235 (Aug.) 1940.

[18] Bauersfeld, S. R.: Dissecting Aneurysm of the Aorta: A Presentation of Fifteen Cases and a Review of the Recent Literature, Ann. Int. Med. **26:** 873-889 (June) 1947.

[19] Packard, F. B., and Scott, W. C.: Disruption of Abdominal Aorta, Northwest Med. **48:** 46-48 (Jan.) 1949.

[20] Schlachman, M.: Dissecting Aortic Aneurysms, New York State J. Med. **49:** 1182-1186 (May 15) 1949.

[21] Gager, L. T.: The Symptoms of Dissecting Aneurysm of the Aorta, Ann. Int. Med. **2:** 658-664 (Jan.) 1929.

ANALYSIS OF MATERIAL

Our study consisted in an analysis of data on 26 cases of verified dissecting aneurysm of the aorta taken from the files of the Section on Pathologic Anatomy of the Mayo Clinic for the years 1924 through 1949. Twenty-two of these cases (1924 to 1948) have been previously studied by Kirkpatrick[16] from the general medical standpoint and for the pathologic nature of the aortic lesions.

TABLE 3.—*Diagnosis in 26 Cases of Dissecting Aneurysm of the Aorta*

	Admission Diagnosis	Final Diagnosis Unchanged	Correct or Suspected Diagnosis
Cerebral vascular accident (stroke)...	6	5	1
Coronary thrombosis (myocardial infarction)	7	4	3
Acute abdominal disease (gallbladder, mesenteric thrombosis, acute pancreatitis)	6	3	3
Hypertensive encephalopathy (uremia, cardiac failure)..........	3	2	1
Found dead (no clinical information)	2	2	..
Acute transverse myelitis (dissecting aneurysm of aorta)..........	1	0	1
Postoperative debility (secondary to cancer of bowel)..........	1	1	0
	26	17	9*

* In 4 cases a positive diagnosis was made; in 5 cases the diagnosis was strongly suggested.

Table 1 gives the sex, age, duration of the illness, etiologic factors and frequency of hypertension in the 26 patients. No single cause could be determined for the affection. In five patients moderate physical exertion was present at the onset of symptoms, while in two other patients considerable emotional strain was present at the time the symptoms of dissection developed. A history of previous hypertension was noted in 16 cases, the hypertension having existed for at least 10 years in six cases. In only one patient, a woman of 35 years of age with Marfan's syndrome, was it known that hypertension had not previously existed. In another patient (case 4) the history indicated an absence of previous hypertension, but necropsy gave every evidence of long-standing hypertension. In the remaining eight patients there was no information available regarding previous blood pressure readings; however, at necropsy cardiac hypertrophy was present, suggesting a previous hypertension. Table 2 outlines the pertinent physical findings in our cases. In table 3 are recorded the admission and the final diagnosis.

In 25 of the 26 patients the onset of symptoms due to the dissecting aneurysm was sudden. In only one patient was there no history or signs to indicate the time of onset of the dissection. Pain was the most constant and dramatic symptom encountered in the series of cases. Seventeen of the 26 patients experienced acute violent pain as the initial symptom. Of the remaining nine patients, five died so suddenly that no history regarding pain was obtainable. The location of the pain which ushered in the symptoms of the dissection in the 17 patients was as follows: sternal, precordial or anterior thoracic regions, 11 patients; upper abdominal area, 3 patients; upper part of the back, 2 patients, and left shoulder, 1 patient. The initial pain tended to spread over the area of onset and extend or migrate to adjoining areas. In only one instance did we note extension of pain down an arm. Frequently the pain would spread or move from chest to back or from abdomen to back and then down one or both lower limbs. These early pains, while having certain neurologic implications, are probably best considered under the heading of general symptoms. During the course of the dissection, pains of various types may be complained of, but their interpretation as to exact origin is not always an easy matter.

NEUROLOGIC COMPLICATIONS

The neurologic complications associated with dissecting aneurysm of the aorta, as may well be surmised from a knowledge of the underlying pathologic changes, are exceedingly variable and at times difficult of interpretation. Brain, spinal cord or peripheral nerves may be embraced in the pathologic process. From 11 (Shennan[1]) to 29 per cent (Weisman and Adams[11]) of the patients with dissecting aneurysm of the aorta are said to have some neurologic symptoms during the course of the affliction. In our series of cases, 12 patients (46 per cent) showed some evidence of neurologic complication. The remaining 14 patients had to be classed as having no objective neurologic findings. Of these 14 patients, nine died so speedily that no thorough examination was possible, although for four of the nine a history of pain at the onset of symptoms was obtained. In two additional patients the medical aspect of the patients' illness was of such major importance that no neurologic examination had been deemed indicated. These figures do not include terminal coma occurring in four patients who had no objective neurologic findings. Thus, the figure of 46 per cent of patients with evidence of neurologic complication might have been increased if adequate facilities for neurologic study had been available.

In the classification of the neurologic symptoms associated with dissecting aneurysm of the aorta, we attempted to follow that employed by Weisman and Adams[11] of (1) ischemic necrosis of the brain, (2) ischemic necrosis of the spinal cord and (3) ischemic necrosis of the peripheral nerves. This was not a simple matter, for in certain instances, because of the limited neurologic examination, it was difficult to be certain if the presenting symptoms were of cerebral, spinal or peripheral origin. It must also be emphasized that at times neurologic findings occurring during the course of the illness (case 3) were unrelated to the dissection but secondary to the patient's general medical condition. Table 4 classifies the major neurologic complications as they appeared in our 12 patients. In eight patients the neurologic symptoms were primarily of cerebral origin, in three patients of spinal cord origin and in one patient it was difficult to determine if the clinical findings represented cerebral or spinal cord damage. In no case could we demonstrate any objective clinical

TABLE 4.—*Neurologic Findings in 12 Cases**

	Frequency
Cerebral: 8 patients	
Hemiplegia, severe (not due to dissection in 2)..........	3
Hemiplegia, partial..........	2
Convulsions (all had other neurologic signs)..........	4
Periods of unconsciousness (3 with neurologic signs) (confusion, collapse, stupor; no terminal coma)..........	4
Probably cerebral (vertigo, facial weakness, paresthesia).....	2
Spinal cord: 3 patients	
Transverse myelitis..........	1
Probably spinal cord (weak legs, reflex changes)..........	2
Cerebral or spinal cord or both: 1 patient (pains, paresthesias of leg, confusion)..........	1
Patients with multiple neurologic findings..........	8

* Of the total 26 patients, 17 had pain as the initial symptom.

evidence of involvement of the peripheral nerves. It should be added that eight of the 12 patients had multiple neurologic findings. These figures do not include the terminal comas.

While pain was the usual signal ushering in the train of symptoms, other equally dramatic warnings gave notice of the impending disaster. Thus, the initial symptom or symptoms were pain and unconsciousness in two patients, pain and convulsions in three patients, hemiplegia in two patients and vertigo in one patient.

As noted in table 4, the major number of neurologic complications were of cerebral origin. Five patients had definite signs of hemiplegia. Three of these had marked weakness of the affected side (unrelated to the dissection in two), and two had moderate weakness of the palsied side. In three of the five patients the weakness involved the left side and in one the right side, and in one the side affected was not recorded. Hemiplegia may occur as an initial symptom, or it may develop during the course of the illness. It is well to bear in mind that not every hemiplegia occurring during the course of the illness need be due directly to the dissection but that hemiplegia may result from other unrelated factors.

REPORT OF ILLUSTRATIVE CASES

Case 1 illustrates one of the commoner types of clinical histories of a dissecting aneurysm of the aorta.

Case 1.—The patient was a man who had been in good health up to 46 years of age, at which time hypertension was first noted. On May 3 of his fifty-second year he awakened at 6:15 a. m. with a severe, sharp pain in his back which extended around over his abdomen. Thirty minutes after the onset of pain he noted numbness and tingling in his left leg. Tenesmus developed, and he began passing large amounts of flatus, with liquid projectile bowel movement. His blood pressure was 290 mm. of mercury systolic and 140 diastolic. He was given a hypodermic injection of ¼ grain (0.016 Gm.) of morphine sulfate, which did not relieve the pain. At 8:45 a. m he attempted to go to the bathroom but had to be carried back to bed as he collapsed, became cyanotic and ceased to breathe.

At necropsy the pericardial sac was distended by 750 cc. of blood. This blood came from an adventitial tear of the intrapericardial portion of the ascending aorta which communicated with a dissecting aneurysm. The internal tear to the dissecting aneurysm was at the origin of the left subclavian artery. The dissection extended along the inferior surface of the arch of the aorta to the tear in the pericardium but did not involve the other major branches in the neck. It also extended distally along the posterior surface of the aorta, into each iliac artery. In the course of the dissection the left subclavian artery was partially compressed at its origin, and all the intercostal and lumbar arteries were torn.

The brain and the spinal cord appeared essentially normal on gross examination. Histologic examination of the brain revealed marked arteriolosclerosis. Sections of the medulla and of the cervical portion of the spinal cord showed, in addition, congestion of the vessels. In the midthoracic region there were multiple perivascular hemorrhages in both the gray and the white matter. In the lumbar and sacral portions of the spinal cord similar but fewer hemorrhages were present.

Convulsions, loss of consciousness and periods of confusion are fairly frequent manifestations of cerebral involvement. Such symptoms may or may not be associated with objective neurologic findings. Case 2 is an example of a patient having convulsions and objective neurologic findings. This case also demonstrates the importance of obtaining roentgenograms of the chest to visualize abnormal changes in the aorta.

Case 2.—The patient, a man 39 years of age, was seized with a sudden severe interscapular pain followed at once by nausea and vomiting. The pain "shot" through his entire chest, lasting a few moments but followed by a persistent ache. The following evening he had another episode of severe pain in his chest, which was followed by two generalized convulsive seizures and semistupor which lasted for about one hour. In the succeeding days he continued having some pain in his chest but had more constant and severe pain over his abdomen and the lumbar portion of the spinal column requiring codeine for relief.

The temperature was normal. The blood pressure was 230 mm. of mercury systolic and 168 diastolic. The leukocyte count was 14,100 per cubic millimeter of blood. Albuminuria was graded 3. The blood urea level was 70 mg. per 100 cc. The sedimentation rate was 74 mm. per hour (Westergren). There was no cardiac murmur, but the electrocardiogram showed a ventricular strain pattern. Roentgen examination of the chest demonstrated an aneurysmal dilatation of the ascending, transverse and descending aorta. The neurologic examination revealed all the deep reflexes in the lower limbs to be decreased and bilateral Babinski reflexes to be present. There was generalized weakness but no paralysis.

The pains gradually lessened. On the evening of the fifteenth day the patient suddenly became apprehensive, dyspnea developed, and he sank into unconsciousness and died in a few minutes.

At necropsy, a dissecting aneurysm was observed to extend from the left common carotid artery to the left iliac artery. The left common carotid artery was compressed at its origin, while the left subclavian artery was narrowed and dissected. All the thoracic and upper abdominal intercostal arteries were torn. The lower abdominal intercostal arteries were intact. The dissecting aneurysm reruptured into the left common iliac artery. There was an external tear into the left pleural cavity, which contained 1,500 cc. of blood. The cerebral convolutions were moderately flattened. On coronal section of the brain the surfaces were unusually moist.

Histologic examination revealed a diffuse sclerosis of the cerebral arterioles, with pyknosis of many nerve cells and with swelling of the oligodendroglia and loosening of the ground substance in the adjacent white matter. In the pons and medulla there were numerous irregularly distributed arterioles containing thrombi with greater and lesser perivascular areas of hemorrhage and infarction. Sections of the spinal cord were essentially normal.

As we have mentioned, not all neurologic symptoms developing during the course of illness in cases of dissecting aneurysm of the aorta need result directly from the dissection. Case 3 is an example of a hemiplegia occurring during such an illness as an unrelated symptom.

Case 3.—The patient, a man 60 years of age, was known to have had hypertension for eight years. Three years before his admission to the clinic he had had what was thought to be partial occlusion of the right posterior-inferior cerebellar artery. At the time roentgenographic examination of the chest had revealed a tortuous aorta with slight calcification.

At 60 years of age, while mixing cement, he was seized with sudden severe pain in his abdomen which extended to his back. Lying down was painful, but he obtained some relief by being up and walking. Systolic blood pressure was 260 and diastolic 140 mm. of mercury. The leukocyte count was 16,000 per cubic millimeter of blood. The electrocardiogram indicated left ventricular strain. A tentative diagnosis of coronary occlusion was made, though the possibility of mesenteric thrombosis was entertained. In about 48 hours the pain subsided. Twenty-three days after the initial pain he arose, ate breakfast and lay down on his bed. An hour later his wife found him with complete flaccid paralysis of the left side. He was confused, gradually sank into a coma and died within 12 hours.

At necropsy there was a dissecting aneurysm extending from the junction of the arch and thoracic aorta to the first portion of the left iliac artery. The major vessels of the arch were not involved in the dissection. The proximal rupture was at the junction of the upper and middle thirds of the thoracic aorta, with a reentrance tear through the left iliac artery. The dissection tore the left intercostal arteries and some of the upper lumbar arteries. Examination of the brain showed the right hemisphere to be swollen and on section to contain a large hemorrhage in the right external capsule which had ruptured into the right lateral ventricle. The spinal cord was not examined.

It was rather surprising, after viewing the pathologic specimen of a dissecting aneurysm of the aorta with the torn intercostal and lumbar vessels, to find that there were so few complications involving the spinal cord. Three of our patients exhibited symptoms that we ascribed to damage to the spinal cord. Such neurologic findings consisted in weakness of one or both legs, paresthesias, pains and reflex changes. Case 4 is an example of irreparable damage to the spinal cord; Weisman and Adams[11] and more recently Scott and Sancetta[22] have described similar cases.

Case 4.—The patient was a man 59 years of age. On Oct. 27, 1948, on arising in the morning he had a sudden, severe, sharp pain in the upper part of the sternum that took his breath away. He got up to get a drink of water but returned to bed, since the pain became severer. It extended down the sternum and then through to the back. It was excruciating, and the patient became dyspneic. In about ten minutes the pain lessened, and it was then noted that his legs were rapidly becoming numb and weak, the numbness spreading upward to the level of the umbilicus. During the following days the pain in the chest and back recurred off and on in milder degree but required morphine sulfate for relief.

On the third day the patient was admitted to the hospital. Neurologic examination revealed flaccid paralysis of the lower limbs. There was a complete loss of sensation to the level of the umbilicus, with absent deep reflexes and absent plantar response. The spinal fluid was normal. Physical examination showed normal temperature, the blood pressure was 100 mm. of mercury systolic and 30 diastolic, the leukocyte count was 13,100 per cubic millimeter of blood and the sedimentation rate was 70 mm. per hour (Westergren). Roentgenographic examination of the chest showed a tortuous aorta, with cardiac enlargement. An aortic systolic murmur was present with a transitory pericardial rub. The electrocardiogram showed some evidence of ventricular strain but was not diagnostic.

The patient's pain subsided entirely during the following four days. He was dismissed from the hospital on Nov. 19, 1948, with no change in the neurologic condition. A diagnosis of dissecting aneurysm of the aorta was made During the following months he had recurring infections of the bladder and increasing decubital ulcers. He died on May 10, 1949, six and one-half months after the initial symptoms.

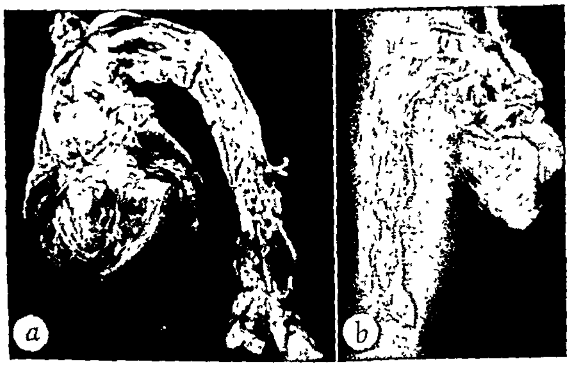


Fig. 1 (case 4).—The aortic luminal side (*a*) and the dissecting aneurysm (*b*). Note the opening in the intima in the ascending aorta and the stretched and torn intercostal vessels with wide open lumens.

At necropsy the heart weighed 800 Gm. and was symmetrically enlarged. On the aortic valve were four recent friable vegetations, the largest 1.2 cm. in diameter. The aorta consisted of a tube with a double lumen, the posterior lumen being a dissecting aneurysm extending from the root of the aorta to the iliac arteries (fig. 1). There were four intimal tears of the ascending aorta opening into this aneurysm; two of the tears had vegetations similar to those on the aortic valve. There was a reentrance tear in the left iliac artery. The dissection extended up the subclavian and common carotid arteries on the right. A few right intercostal arteries were stretched across the lumen in the thoracic aorta, but the remaining intercostal and all the lumbar arteries were severed. The openings of these vessels were patent, however.

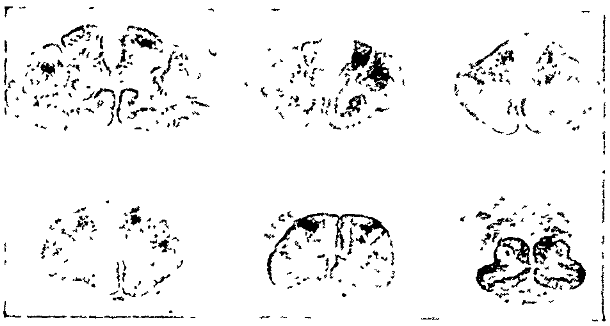


Fig. 2 (case 4).—Weigert-stained sections of the spinal cord showing the degeneration of the ascending tract in the cervical and upper thoracic regions, beginning degeneration of the gray matter in the midthoracic region and extensive loss of gray matter in the low thoracic, lumbar and sacral portions of the spinal cord, with partial preservation of the posterior tracts.

The brain revealed an old infarct in the right superior lobe of the cerebellum. The spinal cord had a normal, firm consistency to approximately the level of the seventh thoracic vertebra. Distally it was shrunken and soft, without the normal lumbar enlargement. On section of the cervical and upper thoracic segments, the posterior columns were white and glistening. The midthoracic segment of the cord was softer, particularly the central gray matter, while in the lower thoracic, lumbar and sacral regions the gray matter was replaced by an irregular honeycombed yellowish cavity.

Histologic examination of the spinal cord (fig. 2) showed that in the cervical region the normal architecture was preserved. There were, however, a considerable decrease in the size of the fasciculus gracilis and a loose appearance of the dorsal and ventral spinocerebellar and spinothalamic tracts, with loss of myelin. Sections of the upper thoracic region were similar, but the loss of myelin was more marked. In the midthoracic region the intramedullary blood vessels were patent. The degeneration of the ascending tract was more pronounced. In the gray matter the neurons of the posterior portion of the anterior horns were missing. In sections at the lower thoracic, lumbar and sacral regions there was a complete loss of the normal central gray matter, and all the nerve cells were missing. The normal tissue was replaced by a fine lattice work of glial fibers with a few swollen astrocytes and many fat-laden macrophages in the meshes. The intramedullary blood vessels remained patent. There was loss of myelin in the ascending tracts, with preservation of myelin in the descending tracts. The axis cylinders were frequently fragmented and swollen. The anterior roots were demyelinated, while the posterior roots maintained the myelin.[22a]

Other striking neurologic conditions, such as aphasia, blindness and changes in the sympathetic nervous system, have been described as occurring in association with dissecting aneurysm of the aorta. As a rule such changes may readily be explained when viewed with the pathologic findings in mind.

CLINICAL AND PATHOLOGIC CORRELATION

There were available for this study the dissected aortas in the 26 cases. In addition we had the brains in 12, the spinal cords in nine and portions of the sciatic nerves in nine cases. The aortas were studied to determine the location and extent of the dissection and to correlate the involvement of the aortic branches with possible interference with the vascular supply of the central and peripheral nervous systems. To appreciate this correlation, an appraisal of the blood supply of the brain and of the spinal cord may be reviewed.

---

[22] Scott, R. W., and Sancetta, S. M.: Dissecting Aneurysm of Aorta With Hemorrhagic Infarction of the Spinal Cord and Complete Paraplegia, Am. Heart J. 38: 747-756 (Nov.) 1949.

[22a] Through the courtesy of Dr. W. E. Youland, pathologist, Cherokee State Hospital, Cherokee, Iowa, we have learned that the brother of this patient also died of a ruptured dissecting aneurysm of the aorta.

The blood supply of the brain comes from two sources: the internal carotid arteries and the vertebral arteries. The spinal cord receives a more complicated blood supply. The anterior spinal artery, which supplies the major portion of the cord, is formed from the paired vessels from the vertebral arteries and the eight or nine irregularly distributed radicular arteries which are derived from the paired intercostal arteries. The parallel posterior spinal arteries, also branches of radicular arteries, supply only the superficial dorsal portion of the cord and have only very fine anastomoses with the anterior spinal arteries. These radicular branches as described by Suh and Alexander [23] are depicted in figure 3. The anterior spinal artery in the midthoracic region becomes markedly attenuated. The major blood supply of the spinal cord below this region comes from a large lower thoracic or upper lumbar vessel, named by Adamkiewicz [24] the arteria radicalis anterior magna. Experimentally, Suh and Alexander were unable to fill the vessels of the lower end of the spinal cord by injecting opaque material into the upper portion of the spinal artery above the attenuated area in the midthoracic region, although the reverse was possible. As shown in figure 3, interference with the blood supply in branches of the aorta, such as could occur with dissecting aneurysm, might well be responsible for pathologic changes in the nervous system normally supplied by such vessels.

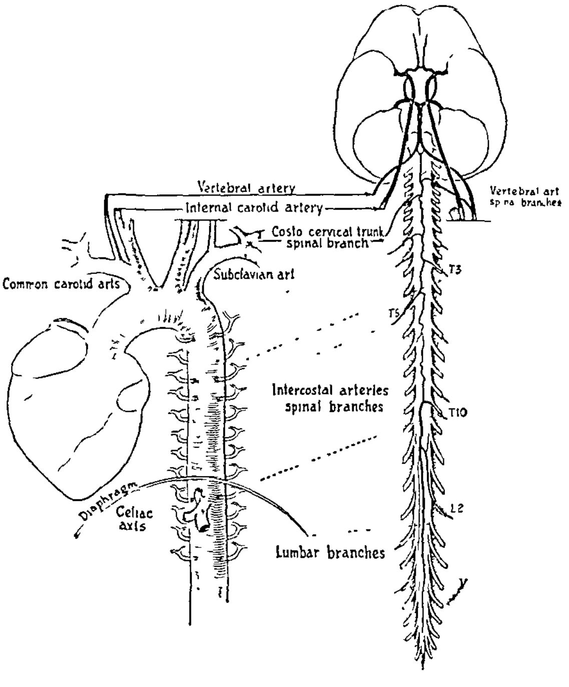


Fig. 3.—Schematic drawing of blood supply to the central nervous system, showing the relationship of the major branches of the aorta to the terminal branches supplying the brain and the spinal cord. (Redrawn in part from Suh and Alexander, *Arch. Neurol. & Psychiat.* **41**: 659-677 [April] 1939 [by permission]).

Of the 12 cases in which the brain was examined, six showed that the dissection involved the major vessels of the aortic arch, while in the other six cases no such involvement was evident. In both groups of cases the clinical and pathologic findings did not parallel one another. Thus, in some instances in spite of considerable dissection of the vessels of the aortic arch no clinical findings were present. On the other hand, in some cases clinical signs of cerebral damage occurred without evidence of dissection of the vessels of the aortic arch being present (tables 5 and 6). In the 14 cases in which the brain was not examined the clinical symptoms had no constant relationship to the state of the vessels of the aortic arch. It should be remembered, however, that the dissection along a vessel does not necessarily imply obliteration of the lumen of that vessel. Furthermore, because of the double cerebral blood supply of the basilar artery and of the circle of

TABLE 5.—*Relationship of Dissection of Vessels of Aortic Arch to Cerebral Lesions and Neurologic Symptoms*

Vessels Affected	Cerebral Lesions	Neurologic Symptoms
All	None	Convulsions 3 days before death
All	Infarct of right basal ganglion	Left hemiparesis for 3 days
All	Old infarct of cerebellum	None
Left subclavian and left carotid	Multiple small infarcts of pons	Convulsions; positive Babinski sign
Left subclavian	Early thrombus of right middle cerebral artery	None; death in 3 hours
Innominate	None	Sudden death

TABLE 6.—*Relationship of Dissection of Vessels of Aortic Arch to Cerebral Lesions and Neurologic Symptoms*

Vessels Affected	Cerebral Lesions	Neurologic Symptoms
None	Massive cerebral hemorrhage	12 hours before death left hemiplegia
None	Massive cerebral hemorrhage	Sudden death at time of dissection
None	Cerebral atrophy and old infarcts	Recent dissection; patient found dead in bed
None	Old infarcts of internal capsule	Onset of dissection 3 years ago; 7 months ago "stroke"; 7 weeks ago right hemiplegia
None	Old infarcts of internal capsule and pons	Died suddenly at home
None	Cerebral edema	Convulsion

TABLE 7.—*Relationship of Dissection of Vessels of Aortic Arch and Intercostal Vessels to Lesions of Spinal Cord and Neurologic Symptoms*

Vessels of Arch	Intercostal Vessels		Lesions of Spinal Cord	Neurologic Symptoms
	Thoracic	Lumbar		
All	All	All	Infarction of lower part of cord	Paraplegia
Left subclavian	All	All	Multiple perivascular hemorrhages	Numbness and tingling of legs; death in 3 hours
None	All	All	None; arteriolosclerosis	None
Left subclavian	All	Upper	None; arteriolosclerosis	Positive Babinski sign (infarcts of pons)
None	Lower	All	None	None
None	Upper	All	None	None
None	None	Upper	Acute infarct around sclerosed vessels	None
None	None	Upper	None; arteriolosclerosis	Weakness of legs
Innominate	None	None	None	None; sudden death

---

[23] Suh, T. H., and Alexander, L.: Vascular System of Human Spinal Cord, Arch. Neurol. & Psychiat. **41**: 659-677 (April) 1939.

[24] Adamkiewicz, A., cited by Suh and Alexander.[23]

Willis, interference with one or more vessels at the aortic arch might not produce cerebral lesions, except in the presence of unusual irregularities or inequalities in the circle of Willis. Finally, because of the associated hypertension, cerebral damage may antedate the dissection or occur independently of it.

In nine cases the spinal cord was examined (table 7). In two cases there were lesions due to interference with the blood supply by dissection of the majority of the intercostal arteries. The most notable changes of the spinal cord occurred in case 4. The other patient with dissection of all the intercostal vessels lived but a few hours, during which time he complained of numbness and tingling in the legs. The spinal cord showed multiple small perivascular hemorrhages. In the remaining seven patients, in whom considerable dissection of the intercostal vessels had occurred, the spinal cord revealed some evidence of arteriosclerosis but no lesions that could be attributed to interference with the blood supply resulting from the dissection; however, one of these patients had some objective evidence of damage of the spinal cord.

In 17 cases the spinal cord was not available for study. In six of these most of the intercostal vessels were torn, while in six many of these vessels were dissected. In all the 12 cases there were no major clinical signs of damage of the spinal cord The remaining five cases demonstrated no dissection of the intercostal arteries and no objective clinical findings

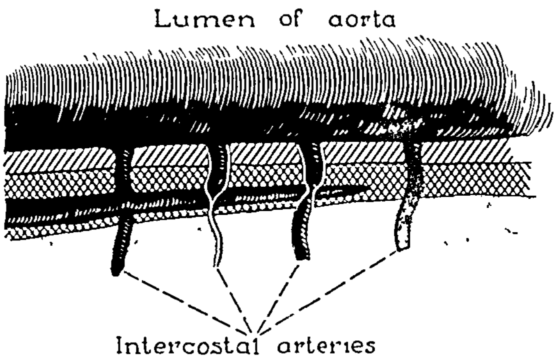


Fig 4—Schematic drawing of the mechanism of spinal ischemia in dissecting aneurysm The dissecting blood, as it extends along the media, stretches the intercostal arteries, first narrowing them and then causing complete occlusion Further stretching leads to rupture of the vessel with reopening of the lumen, which now receives its blood supply, at least in part, from the secondary lumen.

The discrepancy between the extensive tearing of the intercostal vessels and the absence of both neurologic and pathologic findings can best be explained on the basis of the mechanical effects of the dissection on the intercostal vessels (fig. 4). Gross and Hufnagel,[25] in their experimental work on coarctation of the aorta, found that in dogs obstruction of the aorta at the arch for 10 to 50 minutes might produce spinal paralysis It would, therefore, seem that, in man, if the intercostal arteries are stretched for a sufficient length of time before their rupture and the reestablishment of circulation, degenerative changes in the spinal cord might be expected. Another factor requiring consideration is the degree of arteriosclerosis of the affected intercostal vessels. Arteriosclerosis might modify the blood supply to the spinal cord prior to the dissection. It might shorten the time between the stretching and rupture of vessels, and finally it might help to prevent the collapse of the affected vessels.

Proximal portions of the sciatic nerves in nine cases appeared to be essentially normal. This does not rule out degeneration in the distal portions of the nerves, which were not available for study.

COMMENT

From an analysis of our material, certain points may be emphasized. Dissecting aneurysm of the aorta is probably of more frequent occurrence than is usually supposed. The symptoms are fairly characteristic. While much progress has been made in the antemortem diagnosis, the disease remains an elusive one. Frequently the patients are seen in emergency and in circumstances in which an accurate history is difficult to obtain, and the examination may not be satisfactory because of the critical state of the subject. Then, too, in the differential diagnosis so many serious conditions more commonly encountered in routine medical practice have to be included for consideration that the possibility of a dissecting aneurysm of the aorta may be overlooked.

The neurologic complications tend to follow definite patterns of cerebral, spinal cord or peripheral nerve origin. Frequently the neurologic symptoms may be diffuse, involving all portions of the nervous system In our series of cases 46 per cent of the patients gave evidence of neurologic complication. Involvement of the peripheral nerves was essentially negligible, though it must be pointed out that in our study only portions of the sciatic nerves were available for examination. From the clinical standpoint, one certainly gains the impression that many of the pains suffered by these victims might well be due to implication of the peripheral nerves.

The cerebral manifestations are exceedingly variable and can usually be explained on an anatomicopathologic basis. In instances in which the cerebral symptoms cannot be thus explained, they may be due to sudden changes in cerebral blood flow secondary to altered blood pressure resulting from shock and not to any mechanical obstruction in the vessels arising from the aortic arch. There does appear to be a reasonable explanation for the apparent serious disturbance of the vascular supply to the spinal cord.

The correct diagnosis of dissecting aneurysm of the aorta will depend on the physician's understanding of the underlying pathologic process and his awareness of the ensuing symptoms. From a review of our material, we found that the more important points to be considered in establishing a correct diagnosis are in accord with those outlined by Willius and Cragg,[26] and by Glendy, Castleman and White,[27] as follows: (1) the sudden onset of symptoms, with prostration or collapse; (2) the presence of severe and usually prolonged and migrating pains; (3) the presence of hypertension; (4) the presence of neurologic symptoms; (5) normal to only slightly elevated temperature; (6) an enlarged heart with a cardiac murmur and transitory pericardial rub; (7) an electrocardiogram that is not diagnostic; (8) roentgenographic findings of enlarged heart with tortuous aorta which may be dilated and calcified; (9) increased leukocyte count, and (10) albumin in the urine, at times red blood cells.

---

[25] Gross, R. E, and Hufnagel, C. A.: Coarctation of Aorta; Experimental Studies Regarding Its Surgical Correction, New England J Med **233**: 287 293 (Sept 6) 1945

[26] Willius, F. A, and Cragg, R W: A Talk on Dissecting Aneurysm of the Aorta, Proc Staff Meet, Mayo Clin **16**: 41 44 (Jan 15) 1941.

[27] Glendy, R E; Castleman, B, and White, P. D: Dissecting Aneurysm of the Aorta: A Clinical and Anatomical Analysis of Nineteen Cases (Thirteen Acute) with Notes on the Differential Diagnosis, Am Heart J **13**: 129 162 (Feb) 1937.

CONCLUSIONS

Dissecting aneurysm of the aorta is not so uncommon as is usually supposed. Up to the present time no single cause has been demonstrated as a basis for the affliction. As a result of an increasing awareness of the condition, the antemortem diagnosis is made more frequently and especially so if neurologic symptoms are present. In our series of cases, 46 per cent had some neurologic complications. Cerebral symptoms predominated, but dramatic spinal cord symptoms did occur. Most of the neurologic involvement could be explained on the basis of interference with the blood supply to the brain and the spinal cord. At times the symptoms were due to causes associated with the dissection but not directly related to it.

MASSIVE SEPARATION OF THE RETINA IN FULL TERM INFANTS AND JUVENILES

PARKER HEATH, M.D.
Boston

The diagnosis and classification of massive separation of the retina in infants and juveniles is a difficult clinical problem. The vitreal and postlental mass is usually considered to be of inflammatory or neoplastic origin. Depending on the considered etiological basis the condition is referred to as pseudoglioma, retinitis exudativa (Coats's disease) or malignant growth. When premature birth is part of a child's history, the retinopathy of prematurity (Terry's retrolental fibroplasia) is considered. In a study of the last-mentioned disease reported before the Section on Ophthalmology in 1949 examples were encountered of massive separation of the retina occurring in full term infants and juveniles.[1] It is this material augmented by other examples in the collection of the Eye Pathology Laboratory which is used in this report to round out a study of infant and juvenile retinal disease.

The literature of ophthalmology is confusing on the subject of massive retinal separation. References appear under various labels, such as exudative, hemorrhagic or massive retinitis, pseudoglioma, retrolental fibroplasia, Coats's disease and massive gliosis. Collins,[2] as early as 1892, reported that pseudogliomas were due to a fibrosis in the postlental area, choroidal tubercle or inflammation of the uvea and vitreous effusion. Coats's [3] paper, definitive for his time (1908), was entitled "Forms of Retinal Diseases with Massive Exudation." He classified the pathological features of his material into three groups: as an exudation (1) without exaggerated vascular disease; (2) with pronounced vascular changes, and (3) with arterial vascular communication. In a further report (1912) [4] his title was "On Retinitis Exudativa"—sometimes referred to as retinitis hemorrhagica externa. In this paper he separately designated the arteriovenous communication group as an angiomatosis of the retina. Coats's clinical observations may be summarized as follows: the patient, usually a male, of normal general health and family history showed unilaterally a whitish, yellowish exudation in the retina, accompanied with a hemorrhage and structural vascular anomalies. The process was noted to advance gradually and painlessly to complete separation of the retina. From his studies Coats reported exudation of serum and hemorrhage within and outside of the retina, and numerous macrophages accompanied with fibrosis in and between the retina and in the choroid. All these changes were described as exaggerated in late stages. Coats considered that a number of causes could produce the retinal separation.

Leber [5] in 1915 considered these pathological processes to be inflammatory and to show foci of necrosis. He ascribed the origin of a considerable number of macrophages to proliferations of the pigment layer of the retina. He thought that the retinal separation was due to serofibrinous exudation. In the late stages he noted encapsulation by fibrous tissue. Schieck [6] (1930) in Kurze's Handbuch listed published reports and describes similar stages of the pathological process. Lamb [7] in a valuable report (1938) on exudative retinitis described both early and late microscopic lesions. He found primary extensive albuminous edema in whole or part of all layers of the retina—a diffuse process. Some of his patients showed perivasculitis and macrophages, which he thought indicated inflammation. Connective tissue was noted on the inner surface of the retina. He also considered the process to be a retinitis and thought that the retinal pigment epithelium was an important factor in the secondary changes.

Marshall and Michaelson [8] (1933) reported a series with emphasis on eight characteristics: (1) youth of the patient; (2) late stage of the process when seen clinically; (3) chief pathological changes in outer layers of the retina; (4) numerous large bladder cells; (5) relatively insignificant hemorrhage; (6) lack of subretinal membrane; (7) normal pigment layer of the retina, and (8) normal choroid. They considered their cases similar to Leber's retinitis exudativa serofibrinosa. Reese [9] (1936) described three interesting cases of massive retinal fibrosis and gave some thought toward considering this reaction as an entity. Elwyn [10] (1940) described his conception of retinitis exudativa as primarily a vascular malformation with secondary changes due to transudations and hemorrhages.

If I use the loose descriptions of what constitutes these retinopathies, this communication could be said to be a report of 100 cases of pseudoglioma and 22 cases of Coats's disease. Neither term is satisfactory. However, I believe from a study of this material that it is possible to classify massive separation of the retina in infants and juveniles on the basis of a close relationship to a principal cause. Granted that a similar ocular

---

From the Laboratory of Eye Pathology, Massachusetts Eye and Ear Infirmary, aided by a grant from Kresge Eye Pathology Fund.

Read before the Section on Ophthalmology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 30, 1950.

This article has been abbreviated in THE JOURNAL by omission of a portion of the illustrations. The complete article will appear in the author's reprints.

The referral of patients by Drs. Trygve Gundersen, Sidney Farber, Joseph Ginsberg, Hugo B. C. Riemer and Benjamin Sachs aided me in the preparation of this article.

[1] Heath, P.: Retrolental Fibroplasia as a Syndrome, Arch. Ophth. **44:** 245 (Aug.) 1950.

[2] Collins, E. T.: Pseudo-Glioma, Roy. London Ophth. Hosp. Rep. **13:** 361-394, 1890-1892.

[3] Coats, G.: Forms of Retinal Disease with Massive Exudation, Roy. London Ophth. Hosp. Rep. **17:** 440-525, 1907-1908.

[4] Coats, G.: Über Retinitis exudativa (Retinitis haemorrhagica externa), Arch. f. Ophth. **81:** 275-329, 1912.

[5] Leber, T.: Die Retinitis exsudativa (Coats) Retinitis und Chorioretinitis serofibrinosa degenerans, in Graefe, A.; Saemisch, T., and Hess, C.: Handbuch der gesamten Augenheilkunde, Leipzig, W. Engleman, 1915, vol. 17, pt. 2, pp. 126-127.

[6] Schieck, F.: Die Retinitis exudativa (George Coats), in Schieck, F., and others: Kurzes Handbuch der Ophthalmologie, Berlin, Julius Springer, 1930.

[7] Lamb, H. D.: Exudative Retinitis, Am. J. Ophth. **21:** 618-641 (June) 1938.

[8] Marshall, J., and Michaelson, I. C.: Exudative Retinitis in Childhood, Tr. Ophth. Soc. U. Kingdom **53:** 102-118, 1933.

[9] Reese, A. B.: Massive Retinal Fibrosis in Children, Am. J. Ophth. **19:** 576-582 (July) 1936.

[10] Elwyn, H.: The Place of Coats's Disease Among the Diseases of the Retina, Arch. Ophth. **23:** 507-521 (March) 1940.

pathological appearance may arise from different agents and that it is often difficult to relate the initial agent to the chief destructive force—nevertheless, a careful study of the early lesions will usually indicate a cause. This is not possible in late stages because then extensive diseases of the retina resemble one another. Trauma is not considered to be a primary retinal disease and is omitted from the following suggested classification, which will be illustrated in part by brief case reports.

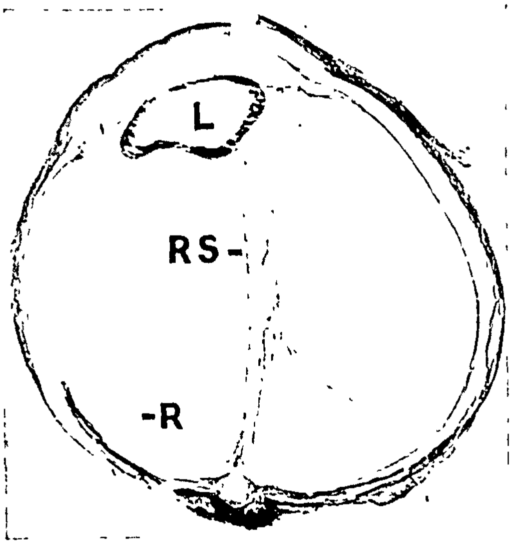


Fig. 1.—Right eye, boy aged 3½ years, illustrates massive separation of the retina, due to its incomplete differentiation, and a deficient secondary vitreous. *L*, the lens, with some posterior cataractous changes, thickened capsule; *RS*, retinal stalk forming retrolental fibrosis behind lens on temporal side, and *R*, incompletely differentiated retina.

Classification of Massive Separation of the Retina in Full Term Infants and Juveniles

Group 1.—Retinal Aplasia and Dysplasia: Due to fetal injury at 13 to 65 mm. stage, often accompanied with deficient secondary vitreous.

Group 2.—Specific Inflammation: Uveitis and endophthalmitis, arising from diverse agents, from bacterial, mycotic and parasitic infections.

Group 3.—Vascular Retinopathy: Disrupting retinal edema or hemorrhage due to pathological permeability that is nonspecific and caused by metabolic disease.

Group 4.—Primary Retinal Neoplasm Neuroectodermal (retinoblastoma), vascular (angiomatosis) and neuroglial (glioma or astrocytoma).

SHORT DESCRIPTIONS AND ILLUSTRATIONS OF THE SEVERAL TYPES OF MASSIVE SEPARATION OF THE RETINA

Group 1, retinal aplasia and dysplasia, is distinguished by congenital ocular maldevelopment, chiefly seen in these rare cases as incompleteness of retinal structure and an insufficient secondary vitreous. The membrane has not enough vitreous support on its inner surface to compel approximation against the choroid; there results loose coaptation, folds, stalks and early congenital massive separation. These patients usually have good general health but others may show dysplasia involving the central nervous system. Clinically, the process is noncongestive, unilateral and painless. Histopathologically the degree of manifestation is closely related to the level of differentiation of the retina. The affected eye is always smaller than its fellow. Some patients show a substantial retinal stalk which includes the hyaloid artery and extends anteriorly from the nerve head. There usually is a retrolental fibrous proliferation induced by the dislocated retina. In addition, the lens is usually cataractous in its posterior cortex and is intimately connected to a membrane which pulls in the ciliary processes. Characteristic findings on the inner surface of the retina are fibrous tags with brushlike terminations. An example of this group (undifferentiated retina) is as follows (figs. 1, 2, 3 and 4):

The right eye of G. W., a boy 3½ years of age, had been smaller than its fellow since birth. Measurements were 18 mm. in the horizontal diameter and 19 mm. in the anterior-posterior. The lens showed postcortical opacification, a thick capsule and a retrolental membrane on its temporal side, drawing in some ciliary processes. A stalk composed of undifferentiated retina and a functioning hyaloid artery extended from the posterior portion of the lens to the nerve head, and a fibrous band extended to the ciliary body from the back of the lens. About one half of the retina had collapsed into an axial position. On the inner surface of the retina were brushlike tufts, abortively contributing to an incompletely formed vitreous. The retina showed a pigment epithelium, partial outer granular layer and incomplete nerve fibrillary layer. The ganglion and nerve fiber layers were not differentiated. The choroid was only partially developed.

Group 2, the largest, represents specific inflammations; it includes the monocular massive separations of the retina from uveitis and endophthalmitis due to demonstrable causes. The pathological processes are suppurative and granulomatous. A careful and prolonged study of the patient and/or the specimen usually reveals one of the many possible causative agents. Meningococcic meningitis in the recent past in this country has been a common cause (about 3 per cent in some epidemics). The Cysticercus parasite in some parts of the world has long been identified as an occasional cause of uveal disease and retinal separation.

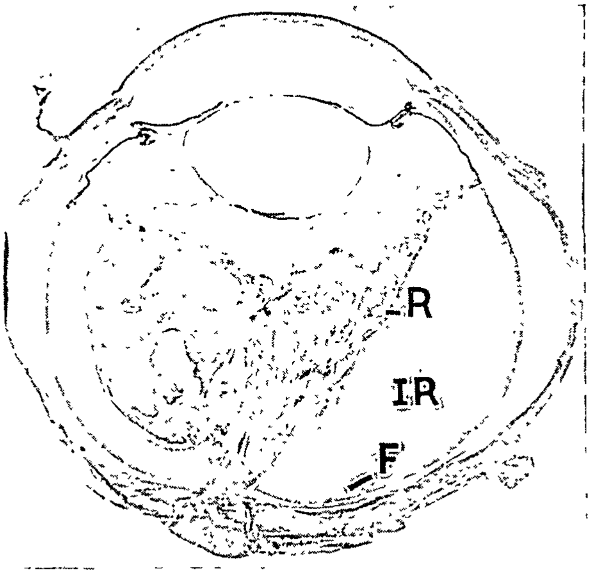


Fig. 5.—Nematode endophthalmitis: *R*, retina shows massive separation and organization and cyst formation and contains worm parasites; *IR*, intraretinal fluid; *F*, fibrosis on pigment layer of retina and choroid.

Of considerable importance, and up to now not emphasized in this country, are the massive separations associated with an endophthalmitis due to mycotic infection and worm parasites. The latter were described by Wilder[11] in a preliminary report at the 1950 Pan-American Congress of Ophthalmology. The parasites (often nematodes) were only found after much search-ing through many sections. It is probable that it will take considerable time to establish the ocular incidence of various parasitic infections in this country. Sections of early lesions more readily show identifiable fungi and worm parasites. *In either case the tissue often responds* by an increase of eosinophilic cells and sometimes by a sharp increase of multinucleated plasma cells Numerous histiocytes are usually to be found along the choroidal and retinal borders of the intraretinal fluid and within the retina. Edema is excessive and some hemorrhage is present. In early cases of each infection, various cycles of the parasite are sometimes found in the choroid, vitreous and retina, especially along borders of the intraretinal fluid and in the retrolental region. A pertinent point is that edema and hemorrhage force the retina apart. It usually is not pulled off by secondary vitreous organization. In late stages fibrosis and pathological repair mask evidences of the invasion The site of the parasite may sometimes be identified by an accumulation of inflammatory cells about a remnant. Contaminants, especially fungi, are liable to be present. It would be ideal to be able to classify pathogens from cultures. The accurate classification of species, especially fungi, depends on cultural characteristics. The pathologist ordinarily does not obtain the specimen in a fresh state, but culture and animal inoculations should be done from suspected material whenever possible. The vectors of these invaders are still to be discovered. The family pet is a likely source of nematodes. The *following is an example of massive separation of the* retina due to nematoid endophthalmitis:

---

[11] Wilder, H. C.: Nematodes and Endophthalmitis, to be published.

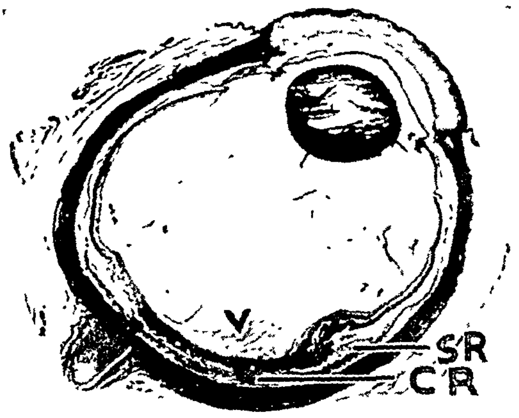


Fig 11—Cryptococcus neoformans (Torula) endophthalmitis There is an extensive necrotizing congenital chorioretinitis with massive separation, part of a general infection, maternal in origin *V*, protein rich fibrinous vitreous, *SR*, serum under necrotic retina, and *CR* chorioretinitis

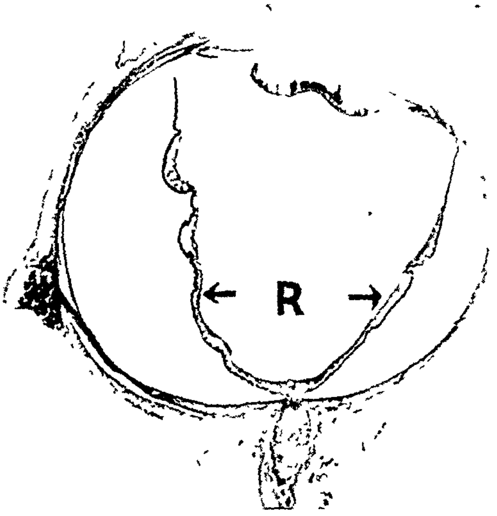


Fig 15—Massive splitting and separation of the retina, *R*, in an early state, due to hemorrhage

After a mild attack of measles a child 2½ years of age showed in the right eye a whitish pupillary reflex two months before admission. The iris was muddy and greenish in appearance compared with the unaffected left eye When the eye was opened in the laboratory, the retina was separated and balled behind the lens. Microscopically the iris showed diffuse infiltration with lymphocytes, plasma cells, some multinucleated, and a few macrophages. Eosinophilia was pronounced. Posterior synechiae were present. A thick fibrous retrolental membrane was associated with the balled retina. Fibrous inflammatory and cystic bands extended into the intraretinal fluid.

The ciliary processes were drawn inward. The retina was attached at the ora serrata, where there was some pigment proliferation and clumping, and at the dragged-in nerve head It showed pronounced folding and dissociation from edema, numerous collections of histiocytes, cyst formation and gliosis Heavy focal accumulations of lymphocytes were scattered in the retina and occasionally in the ciliary body. The choroid was edematous. On the pigment epithelial surface of the separated retina were nodules of fibrin representing organization of repair of hemorrhage Some early atrophic changes were noted in the optic nerve. In sections parasitic worms were found in the anterior vitreous, and some were cut in different planes, and apparently in different cycles, in the retinal fluid and its organizing membrane The whole process was subacute. Secondary walling off and fibrin were moderately present The case is illustrated by figures 5 to 10, inclusive.

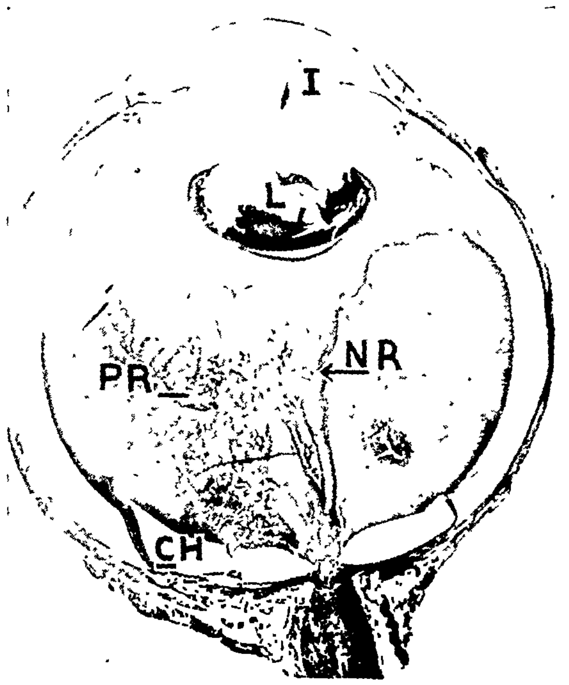


Fig 25—Massive separation of retina due to angiomatosis is representative of primary tumor *I*, iris, anterior synechia, *L*, lens, *NR*, norma leaf of retina separated by protein rich serum, *PR*, neoplastic proliferating vascular tissue within the retina, and *CH*, choroid artefactually separated from sclera

It is possible for a child to be born full term with a mycotic infection of maternal origin. An example of this is endophthalmia from Torula. Infant toxo*plasmosis which also is maternal in origin does* not separate the retina, in my experience, because the necrotizing process is focal in both retina and choroid and fuses these structures.[12] The possibility exists of a combined lesion, and this subject is not closed at this time. The following is an example of bilateral endophthalmitis due to a fungus, maternal in origin, and showing massive separation:

A male infant, about a month premature, at the time of death (27 days) showed a generalized infection from Cryptococcus neoformans; many organs were involved. *Culture* was positive. Some pathological changes suggested a dual infection of cryptococcosis and toxoplasmosis. Ocular sections showed a diffuse, necrotizing chorioretinitis with pronounced dissociation of tissue elements unlike the typical focal chorioretinitis of toxoplasmosis; the vitreous contained fibrin. The retina showed extensive separation with considerable phagocytosis of retinal pigment. Cryptococcus neoformans organisms were easily found in the retina and brain (figs. 11-14).

Group 3, vascular retinopathy, includes nonspecific vascular disease of the retina manifested by pathological permeability. Separation of the retina is brought about by excessive edema and hemorrhage. A possible variant is characterized by multiple primary retinal cysts; it is so rare and its underlying cause so obscure that its inclusion in group 3 is tentative. These binocular manifestations, whether from edema, hemorrhage or multiple cysts, apparently are spontaneous and unaccompanied with other signs of primary inflammation. Hypothetically, an enzymic alteration of the vitreous would give enough force to cause the retina to split apart. In any event the vitreous *is either absorbed elsewhere or is* transported into the retina. Within the retinal funnel the remnants of vitreous as seen in sections are quite different in appearance from the intraretinal protein-rich fluid. The latter usually contains a considerable number of lipid storing fatty histiocytes. These, in my opinion, are derived from the reticuloendothelial system and not from the retinal pigment layer. There is little if any disturbance in the retinal pigment layer. This layer may show a few small, late, secondary proliferations. The vascular proliferations which are often present can be identified as secondary. In general, it is possible that definite causes will be found in group 3 from the study of acute or early states. Allergic states and nutritional deficiencies underlie some massive separations in this grouping.

In the dominantly hemorrhagic form of massive separation the retina is split apart, as is usual in massive separation, at the level of the rod and cone layer. The hemorrhagic form resembles the serous type except for the addition of blood and more histiocytes and earlier fibrosis. Fibrosis and its consequences are secondary and follow the separation but do not cause it. Hyalin necrosis and partially encapsuled detritus and zones of old hemorrhage are commonly seen in sections of eyes in subacute stages. The sections of eyes in advanced stages sometimes show pronounced gliosis, at times massive in degree. Usually fibrosis, massive in degree, ties the retina down proportionally, and its elevation is only nodular and focal. The cystoid changes in late cases are of the degenerative type.

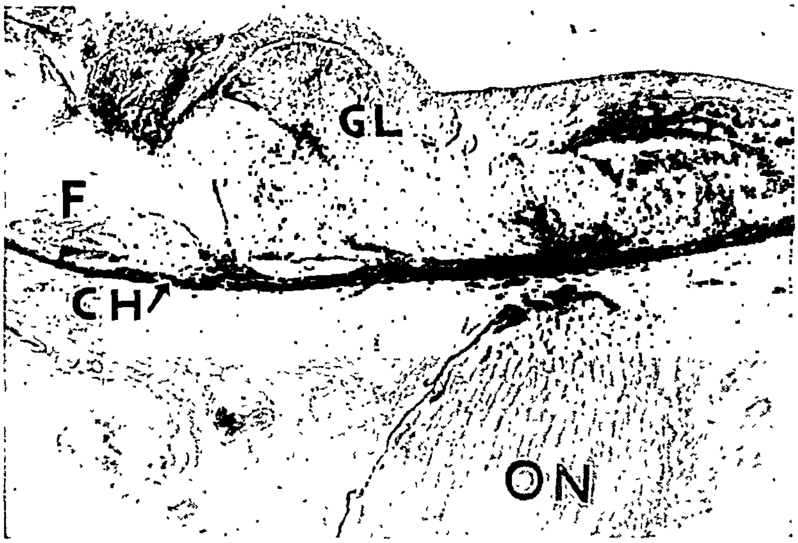


Fig. 32.—Massive gliosis of the retina, a nonspecific reaction, representing repair, usually of hemorrhage, commonly found in late stages of any inflammatory juvenile retinal separation: *GL*, gliosis within the retina; *F*, fibrosis lying over atrophic choroid, *CH*, and *ON*, optic nerve.

There are some hints in the sections that the serous type of lesion is due to an unidentified agent acting locally to provoke the vascular leakage. However, metabolic and indirect causes probably underlie most of the pathological processes of this type. Leber's retinitis exudativa serofibrinosa can be classified here.

An early state of the hemorrhagic type of massive separation of the retina is illustrated in figures 15, 16 and 17. In this case the infant was of at least eight months' gestation, with a birth weight of 4½ pounds (680 Gm.). An extreme degree of disrupting and destroying hemorrhage is illustrated in the retina. The separation is at the rod and cone level, leaving the pigment epithelium with the choroid. The retina is split by extensive hemorrhage, principally at the inner reticular layer; some secondary cystoid spaces are in this zone. The Cloquet canal area is nebulously outlined by a faint fibrillary structure within the vitreous. Eosinophilic granular cells and macrophages are scattered thinly.

The rarest example of massive separation is due to spontaneous multiple bilateral retinal cysts. This condition probably can be classified in group 3, namely, as a massive separation due to some unknown metabolic disease. The cysts appear to be a primary and not a secondary manifestation of degeneration. The cause probably is not local. The process begins, according to sections, just outside the external limiting membrane. The retina is separated at the rod and cone level from the pigment epithelium. There is but little fibrosis in the early stages. The source and force of the disruption apparently is related to the retinal or choroidal blood supply. The ophthalmoscopic findings are unusual, nearly transparent "bubbles" within the retina running anteriorly and posteriorly. It is a bilateral, painless, gradually developing process, which may bear some relationship to the cause of the bone disease as in the case used to illustrate this group. Intraocular pressure is not changed materially. Another distinguishing point is the improvement and maintenance of vision over a considerable period of time after diathermy surface coagulation. Although the underlying cause at the moment is obscure, low level anoxemia over a long ing through many sections. It is probable that it will take considerable time to establish the ocular incidence of various parasitic infections in this country. Sections of early lesions more readily show identifiable fungi and worm parasites. In either case the tissue often responds by an increase of eosinophilic cells and sometimes by a sharp increase of multinucleated plasma cells Numerous histiocytes are usually to be found along the choroidal and retinal borders of the intraretinal fluid and within the retina. Edema is excessive and some hemorrhage is present. In early cases of each infection, various cycles of the parasite are sometimes found in the choroid, vitreous and retina, especially along borders of the intraretinal fluid and in the retrolental region. A pertinent point is that edema and hemorrhage force the retina apart. It usually is not pulled off by secondary vitreous organization. In late stages fibrosis and pathological repair mask evidences of the invasion. The site of the parasite may sometimes be identified by an accumulation of inflammatory cells about a remnant. Contaminants, especially fungi, are liable to be present. It would be ideal to be able to classify pathogens from cultures. The accurate classification of species, especially fungi, depends on cultural characteristics. The pathologist ordinarily does not obtain the specimen in a fresh state, but culture and animal inoculations should be done from suspected material whenever possible. The vectors of these invaders are still to be discovered. The family pet is a likely source of nematodes. The following is an example of massive separation of the retina due to nematoid endophthalmitis:

---

[12] Heath, P., and Zuelzer, W. W.: Toxoplasmosis: Report of Ocular Findings in Infant Twins, Arch. Ophth. 33: 184-191 (March) 1942.

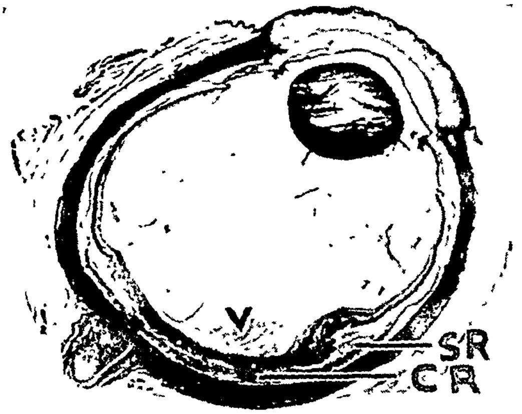


Fig 11.—Cryptococcus neoformans (Torula) endophthalmitis There is an extensive necrotizing congenital chorioretinitis with massive separation, part of a general infection, maternal in origin: *V*, protein rich fibrinous vitreous, *SR*, serum under necrotic retina, and *CR*, chorioretinitis

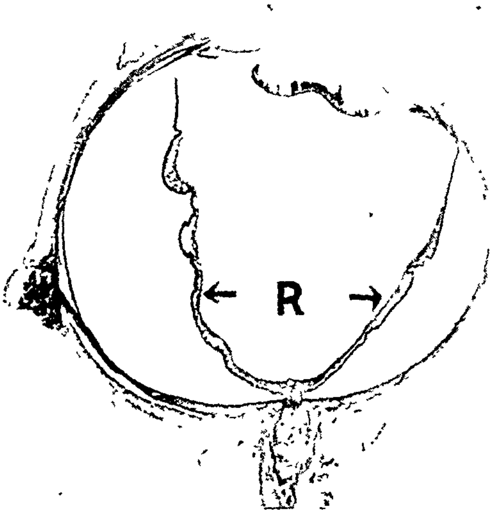


Fig. 15.—Massive splitting and separation of the retina, *R*, in an early state, due to hemorrhage.

After a mild attack of measles a child 2½ years of age showed in the right eye a whitish pupillary reflex two months before admission. The iris was muddy and greenish in appearance compared with the unaffected left eye When the eye was opened in the laboratory, the retina was separated and balled behind the lens. Microscopically the iris showed diffuse infiltration with lymphocytes, plasma cells, some multinucleated, and a few macrophages. Eosinophilia was pronounced. Posterior synechiae were present. A thick fibrous retrolental membrane was associated with the balled retina. Fibrous inflammatory and cystic bands extended into the intraretinal fluid.

The ciliary processes were drawn inward. The retina was attached at the ora serrata, where there was some pigment proliferation and clumping, and at the dragged-in nerve head It showed pronounced folding and dissociation from edema, numerous collections of histiocytes, cyst formation and gliosis Heavy focal accumulations of lymphocytes were scattered in the retina and occasionally in the ciliary body. The choroid was edematous. On the pigment epithelial surface of the separated retina were nodules of fibrin representing organization of repair of hemorrhage. Some early atrophic changes were noted in the optic nerve. In sections parasitic worms were found in the anterior vitreous, and some were cut in different planes, and apparently in different cycles, in the retinal fluid and its organizing membrane. The whole process was subacute. Secondary walling off and fibrin were moderately present. The case is illustrated by figures 5 to 10, inclusive.

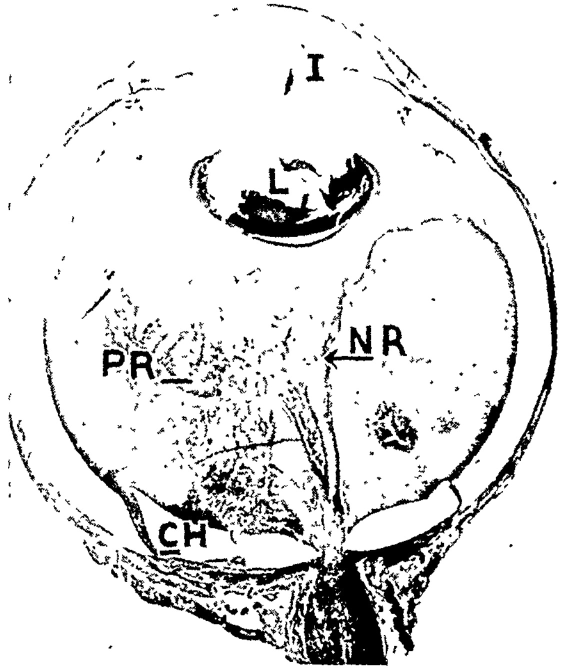


Fig 25.—Massive separation of retina due to angiomatosis is representative of primary tumor: *I*, iris, anterior synechia; *L*, lens; *NR*, normal leaf of retina separated by protein rich serum, *PR*, neoplastic proliferating vascular tissue within the retina, and *CH*, choroid artefactually separated from sclera

It is possible for a child to be born full term with a mycotic infection of maternal origin. An example of this is endophthalmia from Torula. Infant toxoplasmosis which also is maternal in origin does not separate the retina, in my experience, because the necrotizing process is focal in both retina and choroid and fuses these structures.[12] The possibility exists of a combined lesion, and this subject is not closed at this time. The following is an example of bilateral endophthalmitis due to a fungus, maternal in origin, and showing massive separation:

A male infant, about a month premature, at the time of death (27 days) showed a generalized infection from Cryptococcus neoformans; many organs were involved. Culture was positive. Some pathological changes suggested a dual infection of cryptococcosis and toxoplasmosis. Ocular sections showed a diffuse, necrotizing chorioretinitis with pronounced dissociation of tissue elements unlike the typical focal chorioretinitis of toxoplasmosis; the vitreous contained fibrin. The retina showed extensive separation with considerable phagocytosis of retinal pigment. Cryptococcus neoformans organisms were easily found in the retina and brain (figs. 11-14).

Group 3, vascular retinopathy, includes nonspecific vascular disease of the retina manifested by pathological permeability. Separation of the retina is brought about by excessive edema and hemorrhage. A possible variant is characterized by multiple primary retinal cysts; it is so rare and its underlying cause so obscure that its inclusion in group 3 is tentative. These binocular manifestations, whether from edema, hemorrhage or multiple cysts, apparently are spontaneous and unaccompanied with other signs of primary inflammation. Hypothetically, an enzymic alteration of the vitreous would give enough force to cause the retina to split apart. In any event the vitreous is either absorbed elsewhere or is transported into the retina. Within the retinal funnel the remnants of vitreous as seen in sections are quite different in appearance from the intraretinal protein-rich fluid. The latter usually contains a considerable number of lipid storing fatty histiocytes. These, in my opinion, are derived from the reticuloendothelial system and not from the retinal pigment layer. There is little if any disturbance in the retinal pigment layer. This layer may show a few small, late, secondary proliferations. The vascular proliferations which are often present can be identified as secondary. In general, it is possible that definite causes will be found in group 3 from the study of acute or early states. Allergic states and nutritional deficiencies underlie some massive separations in this grouping.

In the dominantly hemorrhagic form of massive separation the retina is split apart, as is usual in massive separation, at the level of the rod and cone layer. The hemorrhagic form resembles the serous type except for the addition of blood and more histiocytes and earlier fibrosis. Fibrosis and its consequences are secondary and follow the separation but do not cause it. Hyalin necrosis and partially encapsuled detritus and zones of old hemorrhage are commonly seen in sections of eyes in subacute stages. The sections of eyes in advanced stages sometimes show pronounced gliosis, at times massive in degree. Usually fibrosis, massive in degree, ties the retina down proportionally, and its elevation is only nodular and focal. The cystoid changes in late cases are of the degenerative type.

There are some hints in the sections that the serous type of lesion is due to an unidentified agent acting locally to provoke the vascular leakage. However, metabolic and indirect causes probably underlie most of the pathological processes of this type. Leber's retinitis exudativa serofibrinosa can be classified here.

An early state of the hemorrhagic type of massive separation of the retina is illustrated in figures 15, 16 and 17. In this case the infant was of at least eight months' gestation, with a birth weight of 4½ pounds (680 Gm.). An extreme degree of disrupting and destroying hemorrhage is illustrated in the retina. The separation is at the rod and cone level, leaving the pigment epithelium with the choroid. The retina is split by extensive hemorrhage, principally at the inner reticular layer; some secondary cystoid spaces are in this zone. The Cloquet canal area is nebulously outlined by a faint fibrillary structure within the vitreous. Eosinophilic granular cells and macrophages are scattered thinly.

The rarest example of massive separation is due to spontaneous multiple bilateral retinal cysts. This condition probably can be classified in group 3, namely, as a massive separation due to some unknown metabolic disease. The cysts appear to be a primary and not a secondary manifestation of degeneration. The cause probably is not local. The process begins, according to sections, just outside the external limiting membrane. The retina is separated at the rod and cone level from the pigment epithelium. There is but little fibrosis in the early stages. The source and force of the disruption apparently is related to the retinal or choroidal blood supply. The ophthalmoscopic findings are unusual, nearly transparent "bubbles" within the retina running anteriorly and posteriorly. It is a bilateral, painless, gradually developing process, which may bear some relationship to the cause of the bone disease as in the case used to illustrate this group. Intraocular pressure is not changed materially. Another distinguishing point is the improvement and maintenance of vision over a considerable period of time after diathermy surface coagulation. Although the underlying cause at the moment is obscure, low level anoxemia over a long

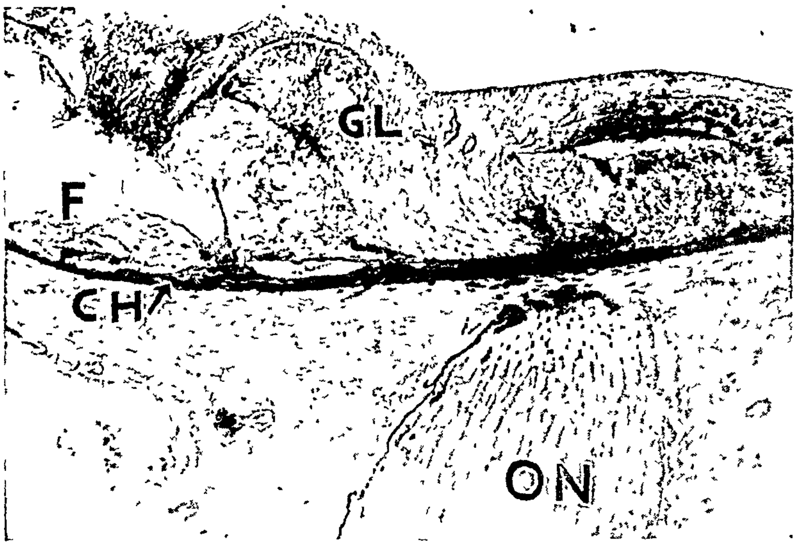


Fig 32.—Massive gliosis of the retina, a nonspecific reaction representing repair, usually of hemorrhage, commonly found in late stages of any inflammatory juvenile retinal separation. *GL*, gliosis within the retina; *F*, fibrosis lying over atrophic choroid *CH* and *ON*, optic nerve.

---

[12] Heath, P., and Zuelzer, W. W.: Toxoplasmosis: Report of Ocular Findings in Infant Twins, Arch. Ophth. **33**: 184-191 (March) 1942.

period of time could theoretically explain the fairly uniform distribution and size of the retinal cysts. An additional discrimination from an ordinary secondary degenerative cystoid disease is its late and slow development without signs of inflammation. In the following illustrative case of bilateral primary massive cystic separation of the retina, the clear cysts appeared when the patient was about ten years of age.

A child at the age of 1 year showed a disturbance of endochondral ossification, possibly an achondroplasia, which was classified by some as eccento-osteochondrodysplasia (Morquio's disease). He became unable to walk, and at the age of 10 years there developed multiple bilateral semitransparent retinal cysts. There was no history of physical injury. The clinical characteristics were slow onset, maintenance of considerable vision for a period of years, mild vitreous opacities, low grade chronic episcleral and scleral infiltrations, and a late disinsertion of the retina. Sections of one globe showed extensive relatively uniformly severe cystoid degeneration throughout, involving inner and outer nuclear layers as well as the zone between, and the retina detached at its ora serrata insertion.

Clinical Differentiation of Massive Separations

Group	Frequency	Onset Age	Sex	Eye Size	Laterality	Inspection and Ophthalmoscopic Findings
1 Retinal aplasia and dysplasia	Rare	Congenital, either full term or premature	Either	Always small	Unilateral	Partial and extensive separation: asymmetric postlental mass, numerous vessels; retinal stalk; cataract changes
2 Specific inflammation	Rare	Birth to 15 yr.	65% males	Normal; atrophy in late stages	Unilateral; rarely bilateral	Early massive separation; inflammatory vitreous; hemorrhage variable, usually exaggerated
3 Vascular retinopathy	Rare	Birth to 10 yr.	More males	Normal	Unilateral or bilateral	Massive separation; uniformly opaque and gray; vessels partly obscured; variable hemorrhage, may be excessive
4 Neoplasm						
Retinoblastoma	Rare	1 mo. to 3 yr.	Either	Normal	Often bilateral	Flat, white retinal patches changing to pink elevated masses; vessels loop in and out
Angiomatosis	Rare	10 to 30 yr.	Either	Normal	Unilateral	Quadrant segmental orange-colored mass; varicose dilated vessels, cysts and exudates
Astrocytoma	Very rare	3 to 30 yr.	Either	Normal	Unilateral or bilateral	Patchy white elevations obscuring vessels

The cysts and small spaces were limited by Müller's fibers running perpendicular to the surface of the retina. Some of the cysts contained pink-staining granular material. Few ganglion cells were apparent, although there was less degenerative change than one would expect. Autolytic changes were mild. The inner limiting membrane was thickened. Some glial proliferations were present. The optic nerve was atrophic. These observations are illustrated by figures 18 to 21, inclusive.

Massive separation of the retina due to primary new growth is classifiable from the tissue of origin into three main types. Each shows in sections easily identifiable growth characteristics. Each has some genetic attributes. The retinoblastoma often shows an irregular dominance. The astrocytoma or true glioma is sometimes familial. The vascular growth, angiomatosis, in about a quarter of the cases is familial. The retinoblastoma often is bilateral, the angiomatosis is unilateral, and the excessively rare astrocytoma may be either unilateral or bilateral. The early clinical appearances of the malignant retinoblastoma and the benign astrocytoma are somewhat similar.

The retinoblastoma usually appears in an infant aged between 6 months and 3 years in one eye; it is liable to involve both. It is characterized by rapid growth, considerable necrosis and, sometimes, the presence of calcium. This rapidly growing tumor is exceedingly dependent on a good oxygen supply. The retinoblastoma, unfortunately, is the commonest of the three tumors. Microscopic study of this tumor shows that it may originate from either the inner or outer nuclear layers or both. The tumor often shows rosette and pseudorosette formation and mineralization.

The fibrous astrocytoma is a monocular or bilateral manifestation which is discovered in children between the age of 4 to 6 years or in young adults and is relatively stationary in growth; other siblings may be affected. Its separation of the retina is partial, gradual and, unless multicentric origins exist, not realized until about the age of puberty. It is such a rare tumor that it is unlikely ever to be seen by the average ophthalmologist.[13] The growth is so slow that often months pass before significant changes can be noted clinically. The retinal separation is first meridial and later the process becomes more massive. Sections of the astrocytoma stained for glial fibers show enormous numbers of glial cells and fibers, some with large, rounded nuclei, others more spindle-shaped. The cells are mostly of two sizes, large and small, both possessing numerous fiber processes. A few exceedingly large, ganglion-sized cells with thicker processes are present.

To illustrate astrocytoma (figs. 22-24), a female infant (whose younger sister was similarly affected bilaterally) showed at the age of 1 year a convergent squint of the left eye. Ophthalmoscopic examination at that time showed multiple greenish white patches and some elevations of the retina bilaterally. The right eye in addition had a nodule on the nerve head. Microscopic examination of the right eye revealed a thickened nerve fiber layer in the retina. Near the ora the retina was poorly differentiated. There was some proliferation of the pigment epithelium, and a hyalin pink coagulum was noted within its fibrous structure. The retina was better differentiated toward the nerve head, especially its external nuclear layer, while the inner nuclear layer remained somewhat thin. There was mild endothelial proliferation within the retinal vessels. A few lymphocytes were stranded through the choroid. The retina itself was separated by a pink-staining granular coagulum. The nerve head in association with the retina showed an elevated mass of glial tissue. Glial cells were of three types, small, large and a few extra large, many showing granules and basophilic staining. Some were decidedly spindle shaped. The large cells were three or more times the size of the smallest and often contained two nucleoli. The nerve fibrillary layer was thickened. Silver stains showed pronounced increase of glial fibers; many were swollen and varicose. Some cystic changes increased toward the ora.

---

[13] McLean, J. M.: Astrocytoma (True Glioma) of the Retina, Arch. Ophth. **18**: 255-262 (Aug.) 1937.

Angiomatosis of the retina (von Hippel's or Lindau's disease) is clinically characterized in early states by elevations of the retina in one vascular quadrant, associated with exudation and hemorrhage. Gradually there are formed decidedly dilated vessels connected by means of a large cyst or multiple cysts and increased exudations. Vasoformative tissue with nodular swellings and proliferations can often be noted with the ophthalmoscope as well as seen in sections. Microscopically, one sees angiomatous structural proliferations and greatly dilated vascular channels within the retina accompanied with extensive edema and hemorrhage in a slowly expanding tumor. The extension of the tumor causes a gradual massive separation of the retina.

of the Retina in Infants and Children

Inflammatory Changes	Intraocular Pressure	Associated Defects and Signs	Progression	Treatment
None	Normal	Common, congenital anomalies in same eye; especially a deficient secondary vitreous	Stationary	None
Congestion; vitreous opacities and retinitis vary with agent	Lowered	Uveitis and endophthalmitis; infections and parasites	Rapid retinal separation	Treat cause; prevent second eye involvement
Mild and in retina	Lowered unless secondary glaucoma from angle block	Pathological permeability; usually unknown and spontaneous causes; endocrine disease	Rapid separation of retina	None known except in the slow onset cystic form
None	Normal	None, dominant inheritance	Rapid growth (weeks)	Enucleation and/or roentgen ray
None early; low grade uveitis; secondary glaucoma from angle block may develop late	Either a late atrophy or secondary glaucoma	Cerebral and cerebellar cysts; sometimes familial	Slowly progressive (months)	Diathermy coagulation
None	Normal	Retina not fully differentiated	Very slow growth (years)	(?) Diathermy coagulation

An example of angiomatosis (figs. 25-31) occurred in a girl 13 years of age, whose mother, now living and well, at the age of 13 years had a similar blind right eye which was enucleated ten years after its discovery. The child's eye had been blind one year. Ophthalmoscopic examination showed in the right eye a large, yellowish white retrolental mass. Many small vessels, some with irregular dilatations in the walls, were seen. There was complete separation of the retina. Examination of the normal-sized enucleated eye showed an anterior vascular membrane of the iris and some anterior adhesions partially blocking the angle. The retina was separated by extensive serum, hemorrhage and dilated neovascular structures; it contained a considerable number of fat-laden histiocytes. The decidedly edematous retina showed an increased thickness of the nerve fibrillary layer, many large and newly formed vessels, and cystic spaces. Nodules of gliosis and fibrosis had formed on the choroid. The vitreous contained excessive fibrin and also was partly organized. Cholesterin clefts were conspicuous in the retina and in the heavily eosin-stained intraretinal fluid. The pigment layer of the retina showed some proliferation and remained with the shrunken choroid.

DIFFERENTIAL DIAGNOSIS

Clinical diagnosis is more difficult to make than diagnosis from sections of pathological tissue. Ophthalmoscopic examinations alone are often inadequate for diagnosis. It is necessary to utilize all available information to arrive at a tentative diagnosis. When the retina is hopelessly compromised and the diagnosis is doubtful, the eye should be removed. This permits a microscopic examination which may save the patient's life or may show means of preventing the involvement of the second eye. A summary of clinical differentiations is presented in the accompanying table.

COMMENT

A study of the classification of massive separation of the retina in full term infants and juveniles will show that congenital developmental anomalies are placed in group 1, that group 2 contains the large field of inflammation from many specific causes, that separations due to little understood or unknown causes repose in group 3 and that group 4 pertains to neoplasms. The common and unifying manifestations in this classification are the point of attack and the consequences, namely, a retinal disease and a massive separation. Acute stages of these retinal diseases are quite different in appearance and easier to classify. Late stages of the retinopathies tend to resemble one another when secondary reparative reaction tends to mask or conceal the primary disease. Late stages of several kinds of retinopathy will show similar fibrosis and gliosis, sometimes massive in degree, as part of the repair from hemorrhage (figs. 32 and 33). Pigment is transported variously and decorates the scar tissue irregularly. But these observations represent changes in degree of pathological repair and should not be confused with specific diseases. A considerable list of merely descriptive terms can be jettisoned by the adoption of the classification based on cause. Additional advances will be reached by further elucidation of causes in the group 3 patients — those with unexplained vascular permeability. Some patients in this group at present classified as possessing an unknown metabolic disease will have some basic causative factor established to explain the vascular permeability; others probably will remain in this group as possessing a metabolic disease identifiable as an endocrine dysfunction. A considerable advance is made, I believe, in establishing a definite framework for classification. In group 2, which is representative of specific inflammations, some agents (like tuberculosis and meningococcic meningitis) and other metastatic and local septic processes and some parasites have long been recognized. Two newcomers emphasized here are retinal diseases and massive separations due to mycotic and parasitic infections. Endophthalmitis due to a fungus can occur in infants, juveniles and adults, and it can also be a congenital disease maternal in origin. The parasitic worms are more liable to be acquired during juvenile life. But parasites can be acquired by the premature after birth and may cause massive separation.

A third and apparently new and rare type of massive bilateral separation which originates from multiple retinal cysts is described herein. A fourth exceedingly rare cause is the benign growth, astrocytoma, which can occur in young juveniles and siblings. It is probable that these relatively slow growths may be discovered in adult life, although the first manifestation was not recognized in juvenile life. The frequency of the various causes of massive primary retinal separations will only be established after extended study.

CONCLUSIONS

Massive separation of the retina in infants and juveniles is caused by many factors and agents. The incidence of each etiological factor remains to be determined. A sufficient number of these are recognizable to justify a classification based on causative factors and/or the principal primary pathological manifestations.

A significant cause of massive retinal separation in juveniles is endophthalmitis due to parasitic infection.

The terms pseudoglioma and Coats's disease are misleading, and nondescriptive, and should be dropped. Some examples of massive separation of the retina due to rare causes are reported, namely, fungus infection, Cryptococcus neoformans, primary cystic retinal disease and astrocytoma.

243 Charles Street (14).

ABSTRACT OF DISCUSSION

Dr. Michael J. Hogan, San Francisco: This paper is instructive because it helps clarify the confusion created by recent extensive discussions on retrolental fibroplasia. I was struck by the number of authors who considered diseases of this type as purely of inflammatory origin. It is surprising that, in view of Coats's original observations, more effort has not been expended to expose the vascular nature of some of these lesions, which at present is only partially known. I agree with Dr. Heath that the terms pseudoglioma of the retina, Coats's disease, external exudative, hemorrhagic or massive retinitis and massive gliosis are inexact and unsatisfactory. One has at least a chance in the early stages to establish the causative factor in these cases, but in the later stages it is difficult or impossible. If the patient exhibits signs of a coincident systemic disease the diagnosis may become even more evident. In the later stages when reparative processes are complete it is impossible in most instances to make either a clinical or pathological diagnosis. I would like to ask Dr. Heath whether it would not be better to classify cases of this type as (1) congenital, due to (*a*) developmental defects, (*b*) acquired inflammation during gestation or (*c*) trauma, and (2) infantile and juvenile, due to the etiological factors proposed in his paper. I noted that he omitted trauma as a possible etiological agent, and wonder whether he would include these cases in group 3 or devise a new heading. I find it difficult to accept the heading in group 3, namely, pathological vascular permeability with separation of the retina by excessive edema or hemorrhage. Would it not be better to classify these cases as either vascular or circulatory and then attempt to subclassify the causative factor? As an example, may not angiomatous malformations, leakage from or rupture of fusiform or saccular aneurysms, and sudden arteriovenous communications produce these lesions? It is also possible that an infective embolus may erode a vessel and cause a profuse hemorrhage, thus completely masking the original cause. A serious objection to this concept is that most of these lesions should occur in the vessels of the inner retina. The resulting hemorrhage should be in the inner retina and adjacent areas; nevertheless, I know of several cases of this type which demonstrate angiomatous changes. In Dr. Heath's case of hemorrhagic type of massive separation in an infant born at eight months, the cause of death at 27 days of age was not stated, and it would be interesting to know whether there was any birth trauma, cerebral hemorrhage or evidence of prolonged asphyxia.

Dr. Parker Heath, Boston: When one attempts a classification in a field of this sort, the initial effort usually is extremely complicated, and with time one revises it more and more until ultimately it is reasonably simple. I would not quarrel with Dr. Hogan about the choice in terminology of "circulatory" or "vascular"; either would be acceptable. I think that the net result of the various types of vascular injury presented is a pathological permeability, serous or hemorrhagic. Consequently, the term "vascular" was used with the subtitle, "pathologic permeability." This seems to me more inclusive than any other terminology that could be used. In the matter of the congenital monocular defects, these are encompassed by the terms retinal aplasia or dysplasia. It is with some temerity one follows such men as Coats and Collins and attempts to alter their descriptive nomenclature, but I believe that causation is manifested in a high enough percentage of this group of patients to permit a definitive classification. It has proved to be practical in the hands of the clinicians and offers a basis for treatment and prevention.

LATERAL PHARYNGEAL DIVERTICULA AS A CAUSE OF DYSPHAGIA

JACOB BUCKSTEIN, M.D.
and
STANLEY REICH, M.D.
New York

A comparatively rare cause of dysphagia not ordinarily considered in differential diagnosis is that of lateral pharyngeal diverticula. Recently we have had two examples of this disorder. In this condition the diverticula project anterolaterally from the hypopharynx at about the level of the pyriform sinuses.

We include herein a brief survey of the embryology of this condition. The lateral surfaces of the neck of the embryo become indented by four bilaterally-paired branchial grooves during the fourth to fifth weeks of embryonic life. Concurrently, four bilateral pairs of branchial or pharyngeal pouches arise internally from the lateral walls of the pharynx. These grooves and pouches correspond and lie opposite each other. Each pair is separated from the next by the branchial arches. An unpaired median outgrowth also appears in the floor of the pharynx.

The single ventral outgrowth is the thyroid diverticulum, which becomes the thyroid gland. The first pharyngeal pouch becomes the eustachian tube, middle ear and mastoid antrum. The second becomes the Rosenmüller groove in the supratonsillar fossa as well as the epithelial lining of the palatine tonsil. The third gives rise to the parathyroid glands, thymic corpuscles and reticulum of the thymus gland. The fourth leaves no definite remnants in man. The third and fourth pouches merge to form the pyriform sinus, with the dividing line at the level of the plicae nervi laryngei.

The third pouch is anterior and the fourth pouch posterior to this structure. In our patients the diverticula apparently arose from either the third or fourth pouches which were not obliterated during the normal course of development. The roentgen anatomy of the normal hypopharynx has been described elsewhere.[1]

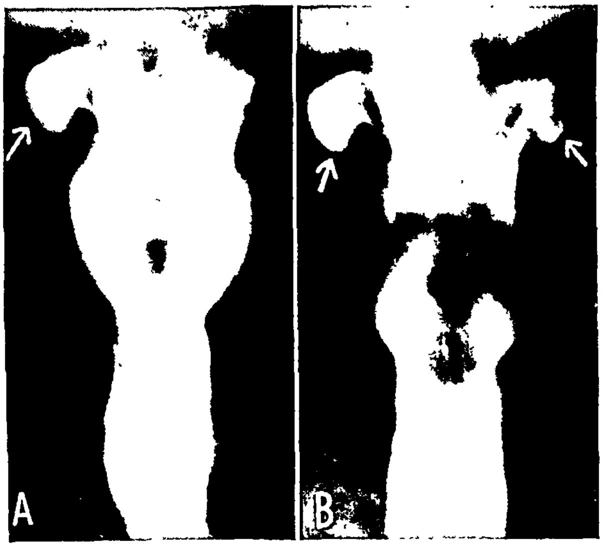


Fig. 1 (case 1).—*A*, spot film of the hypopharynx completely distended with barium, showing only the right lateral pharyngeal diverticulum. *B*, spot film of the hypopharynx showing the right and left lateral pharyngeal diverticula. This method was the only means of demonstrating this condition since the hypopharynx emptied itself of barium so rapidly. However, this does not imply that food particles would not be lodged in these diverticula and thereby cause the symptoms of which the patient complained.

Symptomatology.—The complaint is that of dysphagia. Since the diverticula retain food, the patient has a sense of fulness in the neck. One may relieve this by either emptying the sac by change in position or lavaging the diverticulum while drinking water. For obvious reasons, food which is regurgitated after being eaten will be found to be completely undigested.

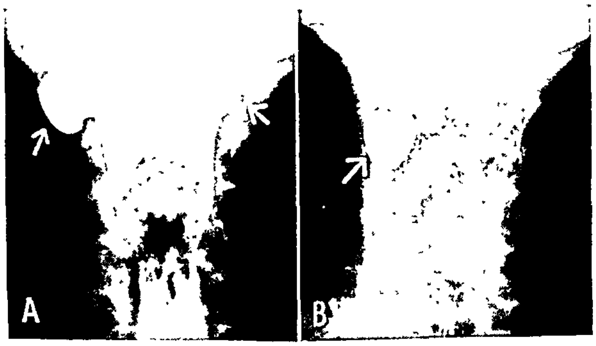


Fig. 2 (case 2).—*A*, the large pharyngeal diverticulum extending laterally on the right side. A smaller diverticulum may also be noted on the left side. This is not completely filled with barium. *B*, with the hypopharynx only partially distended with barium, the centrally placed bilateral valleculae may be noted. On the right side is the oval pharyngeal diverticulum. The diverticulum on the left side is not seen because it is not distended with barium. Barium was present in the right lateral diverticulum for several hours. This would explain why pills stuck in the patient's throat and why he regurgitated undigested food.

REPORT OF CASES

The clinical manifestations and the roentgen appearance of this disorder are illustrated by the following two cases:

Case 1.—H. L., a man aged 54, for three years prior to examination complained of food sticking in his throat. He stated that he had to swallow "real hard" to get it down. He had more difficulty in attempting to swallow solid food, but occasionally he also had difficulty with liquids. At times he might be free of dysphagia for as long as one month. He had been gaining weight, and there was no vomiting. Fourteen years previously he had been operated on for a perforated peptic ulcer, and except for a mild recurrence seven years later he remained free of gastric symptoms.

Case 2.—H. D., a man aged 45, stated that during a period of 20 years pills "stuck in his throat." During the same length of time he frequently regurgitated undigested food, sometimes three days after ingestion. In addition, the patient gave a history of peptic ulcer of 20 years' duration and an operation 11 years previously for a perforated duodenal ulcer. He had lost 26 pounds (11.8 Kg.) in the preceding three years.

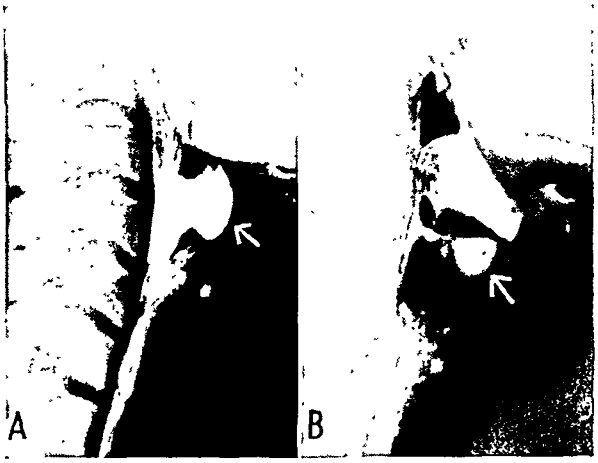


Fig. 3. (case 2).—*A*, right lateral position of the pharynx. Note the appearance of the large right pharyngeal diverticulum extending anteriorly. The valleculae were not filled with barium at the moment when the exposure was made. *B*, right lateral view of the hypopharynx. At this time the barium-filled right vallecula is clearly seen partially overlapping the right pharyngeal diverticulum below.

SUMMARY

Two cases of lateral pharyngeal diverticula as a rare cause of dysphagia are reported. With this condition in mind it is possible that physicians will discover more cases of this nature, particularly if spot film studies are made of the barium-filled hypopharynx.

1150 Fifth Avenue.

Air Embolism.—An air embolus differs from a solid embolus in several ways. Whilst solid material will pass with the blood stream and stick in a vessel of its own diameter, the distribution of air is partly determined by the simple fact that bubbles in fluid will rise, and so air tends to reach the highest vessels. It has been shown experimentally that air bubbles do not pass into vessels of less than 40μ in diameter. Bubbles of this size in blood behave more like plastic solids than viscous liquids. The effects of air embolism are produced not only by mechanical blockage of blood flow, but also, since air is irritant to the vessel, by peripheral vascular spasm distal to the embolus, such as occurs with solid emboli. Apart from air embolism there are few causes of the appearance of gas in blood vessels. Decomposition and gas gangrene are unlikely to confuse the pathologist and in the case of the "bends" (caisson disease) the history will be clear. Occasionally, however, air gets into cerebral cortical vessels when the skull cap is taken off at autopsy, and it may enter the neck and other veins when these are severed. Therefore in performing an autopsy in a case of possible air embolism, the brain should be examined before the neck veins are opened or other organs removed.—C. Allan Birch, M.D., F.R.C.P Air Embolism, *The Practitioner*, August 1950.

---

[1] Buckstein, J.: The Digestive Tract in Roentgenology, Philadelphia, J. B. Lippincott Co., 1948.

AUREOMYCIN IN THE TREATMENT OF INFLUENZA

A Controlled Study

MAJOR WILLIAM G. THALMANN
Medical Corps, United States Army
C. HENRY KEMPE, M.D.
San Francisco
CAPTAIN JOSEPH A. WORRALL
Medical Corps, United States Army
and
GORDON MEIKLEJOHN, M.D.
Berkeley, Calif.

This report deals with a controlled study of the use of aureomycin in the treatment of influenza, type A′, in a military installation during the winter of 1949-1950. The study includes a total of 150 cases of serologically proved influenza A′. Of the 150 patients, 69 were treated with aureomycin, 43 were treated with penicillin and 38 received no chemotherapeutic agent.

PATIENT MATERIAL

The patients included in this study were a group of previously healthy young men, who were engaged in basic military training at an Army Post and who were admitted to the medical wards of an Army Station Hospital. The epidemic of influenza began abruptly during the first week of January 1950, rapidly reached a peak during the third week of January and subsided almost as abruptly during the following three weeks.

CLINICAL DESCRIPTION OF AVERAGE CASE

In general, the patients presented themselves with histories of an illness which was sudden in onset and which was characterized by chilliness and fever, malaise, retro-orbital pain, generalized aches and pains and soreness of the throat. In the majority of cases some degree of cough was present. In most instances these patients appeared acutely ill on admission. All were febrile. Temperatures ranged from 99 to 104 F. on admission to the wards, and in approximately one third of the patients the maximum temperatures were 103 F. or higher. Physical examination usually revealed little except the frequent occurrence of conjunctival injection, diffuse redness of the nasal and pharyngeal mucosa and occasionally the appearance of dry or moist rales in the lungs. Except in a few cases, the disease was of moderate severity and was similar clinically to that in other outbreaks encountered by us during the past four epidemic years. Complications included five cases of roentgenographically proved pneumonia resembling in appearance primary atypical pneumonia. Bacteria regarded as etiologically significant were not isolated from any of these five patients. No complications proved to be of bacterial origin were encountered.

METHODS OF STUDY

Immediately on their arrival in the hospital, the patients were admitted to wards specifically instituted for the handling of acute respiratory illnesses. During the first half of the epidemic these patients were assigned alternately either to the aureomycin-treated group or to the penicillin-treated group, depending entirely on the time of their arrival in the ward. During the latter half of the study, patients were similarly assigned to treatment groups, a change being made, however, in that during this period every other patient was treated with aureomycin and every other patient received no chemotherapy. This grouping of patients as to treatment applied to all admissions to these wards during the period of the study; since not all these patients were found to have influenza and since only cases of proved influenza are considered here, the number of patients treated with aureomycin is not identical with the total number of patients who received penicillin or no chemotherapeutic agent.

All laboratory studies were initiated prior to institution of therapy. In addition to routine blood counts and urine examinations, throat and sputum cultures were done on each patient. Blood cultures were taken on patients who appeared most severely ill or who had evidence of pulmonary involvement. Serologic studies were done on all patients admitted to the wards. These included tests for complement-fixing antibodies on paired acute and convalescent serums for influenza A and B and for agglutination-inhibiting antibodies in those instances in which the results of former tests were inconclusive. Cold agglutination tests were done on all convalescent serums. Throat washings from six representative patients were inoculated into ferrets or fertile eggs for isolation of virus. Chest roentgenograms were taken when physical findings indicated.

Table 1.—*Analysis of Dosage*

Drug	Mean Total Dose	Mean Duration of Treatment, Days
Aureomycin	4.2 Gm.	4.2
Penicillin	2,700,000 units	4.5

Table 2.—*Analysis of Results*

Group	No. of Patients	Duration of Illness		Mean Interval Before Sustained Temperature Drop,* Hours
		Mean Total, Days	Mean in Hospital, Days	
Aureomycin treated	69	4.7	2.7	39.0
Penicillin treated	43	4.2	2.7	39.5
Untreated	38	4.9	3.0	40.6

* This is the mean interval between admission to the hospital or initiation of treatment and sustained temperature drop to 99 F. or lower.

CRITERIA FOR DIAGNOSIS OF INFLUENZA

All 150 patients with diagnoses of influenza A′ showed a rise in titer of fourfold or more in either the complement fixation or the agglutination inhibition tests, or in both. Virus strains isolated from throat washings of five patients during the epidemic were of the A′ type.

DOSAGE OF AUREOMYCIN AND PENICILLIN

Aureomycin was given orally in doses of 0.25 Gm. every six hours for a total daily dose of 1.0 Gm. This amount of aureomycin, one-half to one-fourth the dose frequently used, was selected because serum levels in patients receiving this dose have been found to be not much lower than those in patients on larger dose schedules[1] and because gastrointestinal toxicity has been of negligible importance in patients on the smaller dose schedule. In addition, in our experience in treating primary atypical pneumonia,[2] the therapeutic effects

---

The aureomycin was supplied by the Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

These studies were carried out under the auspices of the Commission on Influenza, Armed Forces Epidemiological Board.

From the Medical Service, Station Hospital, Fort Ord, Calif., the Divisions of Pediatrics and Medicine, University of California Medical School, and the Viral and Rickettsial Disease Laboratory, California State Department of Public Health.

[1] Brainerd, H. D.: Aureomycin Blood Levels, unpublished data.

[2] Shragg, R. I.; Castagno, A. J., and Meiklejohn, G.: Aureomycin in the Treatment of Primary Atypical Pneumonia, unpublished data.

observed with smaller amounts of the drug have compared favorably with those with larger amounts. Penicillin, in the form of an aqueous procaine preparation, was given intramuscularly once daily in doses of 600,000 units. An analysis of dosage is given in table 1. Symptomatic treatment, including the use of antipyretic drugs, was held to a minimum.

ANALYSIS OF DATA

Data were analyzed with respect to total duration of illness, duration of illness observed in the hospital and duration of fever after therapy was initiated. The total duration of illness was determined as the time interval between the onset of symptoms and complete clinical recovery of the patient. The duration of fever after therapy was measured as the time interval between the onset of therapy and a sustained fall in temperature to 99 F. or below. In the untreated group, the corresponding interval of sustained drop in temperature to 99 F. or below was measured from the time of admission. Since in the majority of cases there was a variable time lag between admission of the patient to the hospital and the initiation of treatment in the groups treated with penicillin or aureomycin, proper correction for this lag was made in determining this interval in the group receiving no treatment.

ANALYSIS OF RESULTS

Results are tabulated in table 2. The mean duration of illness was 4.7 days in the aureomycin-treated group, 4.2 days in the penicillin-treated group and 4.9 days in the untreated group. The mean duration of illness in the hospital was 2.7 days in the aureomycin-treated group, 2.7 days in the penicillin-treated group and 3.0 days in the untreated group. The mean interval between institution of therapy and a sustained fall in temperature to 99 F. or below was 39 hours in the aureomycin-treated group and 39.5 hours in the penicillin-treated group. In the group receiving no treatment, the corrected mean interval between admission to the hospital and a corresponding fall in temperature was 40.6 hours.

COMMENT

In a previous study of the effect of aureomycin on influenza,[3] it was reported that the use of this drug in 18 cases was followed by rapid improvement and relief of symptoms. The authors pointed out that no parallel cases were observed without therapy. The patients were selected for aureomycin therapy because of the severity of their symptoms and actual or suspected pulmonary complications. Bacterial pathogens were found in the throat cultures of a number of patients without pneumonia but were not found in sputums of any patients with pneumonia.

In the present study the situation differed in several respects. The patients were all previously healthy young adults who were found during their hospitalization to have an extremely low carrier rate for bacterial pathogens. In addition, the patients were wholly unselected and represent a cross section of all patients with influenza during this epidemic. In this situation there was no evidence that aureomycin or penicillin influenced the course of the disease. In a different situation, with a different virus or with a high carrier rate for respiratory bacterial pathogens, a reduction in complications might result from the use of aureomycin or other antibiotics.

The question can be raised whether a larger amount of aureomycin, such as the 4.0 Gm. dose used in a previous study, might have produced a more favorable result than the 1.0 Gm. daily dose used in the present study. In answer to this it should be noted that the mean duration of fever in the untreated patients was only 40.6 hours after they had reached the stage of their illness when treatment would have been begun. This is within the mean period generally allowed for an effective chemotherapeutic agent to cause a return of temperature to normal. If this assumption is valid, the dose and, for that matter, the use of the drug lose much of their relevance.

CONCLUSIONS

In a controlled study of the effect of aureomycin in the treatment of influenza A′, in 150 consecutive unselected cases occurring during an epidemic, the course of the illness in patients treated with this drug was not significantly different than that observed in patients who received penicillin or no chemotherapy at all.

---

[3] Finland, M.; Wells, E. B.; Collins, H. S., and Gocke, T. M.: Aureomycin in the Treatment of Influenza and Certain Other Acute Respiratory Diseases With or Without Pneumonia, Am. J. Med. **8**: 21 (Jan.) 1950.

CLINICAL PHYSIOLOGY OF POTASSIUM

WILLIAM S. HOFFMAN, M.D.
Chicago

Though it has been known that the cell membranes are freely permeable to water, dextrose, oxygen, carbon dioxide, urea and other nutrient and excretory products, it was believed in the past that they were impermeable to sodium, potassium and other electrolytes. That is how the great difference in concentration of these ions on the two sides of the membrane was explained. Ideas on this subject have been sharply modified in the last few years, and this modification has led to a much better understanding of the clinical physiology of potassium and to better therapy of dehydration. Studies with radioactive isotopes of sodium and potassium and with heavy water [1] have shown that the cells are permeable to sodium and potassium. This permeability is slow compared with that of water. When heavy water was injected intravenously by Moore,[1a] equilibrium with the total body water was established in 120 minutes. When radioactive sodium was injected, equilibrium with extracellular sodium was reached in 60 minutes but not with total body sodium until 24 hours. Radioactive potassium requires 15 hours before reaching equilibrium with cellular potassium.

The average concentration of serum potassium in normal human subjects is about 4.7 milliequivalents per liter (18.2 mg. per 100 cc.). The range of normal is from 4.0 to 5.4 milliequivalents per liter (16 to 21 mg.) per 100 cc.[2] In the intracellular fluids, the concentration of potassium is much higher, for here potassium is the principal cation, the cellular sodium concentration being low. If the recent data [1b] on dogs can be translated to human subjects, the average normal potassium concentration in all cellular fluid is about 115 milliequivalents per liter of cellular water, or some 23 times

---

Read before the Section on Pathology and Physiology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

From the Hektoen Institute for Medical Research of the Cook County Hospital and from the Department of Physiology, University of Illinois College of Medicine.

[1] (*a*) Moore, F. D.: Adaptation of Supportive Treatment to Needs of Surgical Patient, J. A. M. A. **141**: 646 (Nov. 5) 1949. (*b*) Levitt, M. F., and Gaudino, M.: Use of Radioactive Isotopes to Measure Intracellular Cation Concentrations in the Normal Dog, Am. J. Physiol. **159**: 67, 1949.

[2] Hoffman, W. S., and Jacobs, H. R. D.: The Partition of Potassium Between the Serum and Corpuscles in Health and Disease, J. Lab. & Clin. Med. **19**: 633, 1934.

that of the serum. The total potassium content of the adult body is about 4,000 milliequivalents (160 Gm.), of which only 70 milliequivalents (2.7 Gm.) is in the extracellular fluids (fig. 1).

There is no adequate explanation of how and why the tissue cells acquire and maintain so much higher a concentration of potassium than that of the serum or interstitial fluids. Since it has been repeatedly demonstrated that potassium leaves the cells during potassium losses from the body [3] and enters cells during its administration,[4] it appears then that there is normally an equilibrium being maintained between the low extracellular concentration and the high cellular concentration. This equilibrium is unstable, to be sure, in opposition to osmotic forces which tend to equalize the concentrations. It is reasonable to believe that this unstable equilibrium is being maintained by the oxidative energy of the cells. If this be so, then cellular anoxia would tend to send potassium out of the cells into the extracellular fluids. Such a phenomenon might account for the rise in serum potassium concentration with exercise [5] and in agonal states and might explain the progressive transfer of red cell potassium to plasma in stored blood.

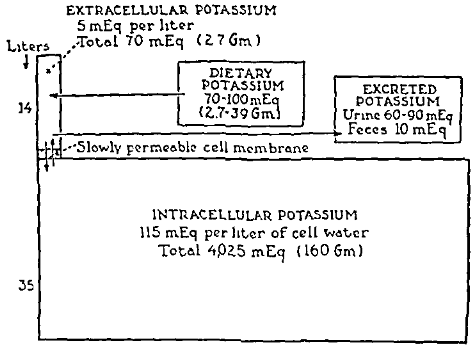


Fig. 1.—Normal distribution of body potassium.

Factors tending to increase serum potassium concentration are (1) increased potassium intake, (2) oliguria or anuria, (3) tissue breakdown or anoxia, (4) contraction of extracellular volume by dehydration and (5) adrenal cortical deficiency. Factors tending to decrease serum potassium concentration are (1) limitation of food intake, (2) increased renal excretion of potassium —(*a*) diuresis, (*b*) acidosis and (*c*) adrenal cortical hyperactivity—(3) dilution of extracellular fluid with potassium-free fluids, (4) vomiting or diarrhea and (5) glucose uptake by cells. Actual serum potassium concentration is determined by balance of all factors operating at the moment.

The equilibrium between extracellular and intracellular potassium is constantly being interfered with by a number of events which serve temporarily to raise or lower unduly the concentration of serum potassium, because they occur faster than the slow permeability of the cell membrane permits the reestablishment of equilibrium. The most important of these factors are as follows:

1. Potassium is constantly being excreted from the body by a renal mechanism designed for efficiency in removing excess potassium rather than conserving it during deficiency. The renal losses are exaggerated by diuresis, acidosis and excess adrenocortical hormone.

2. Potassium is present in the gastrointestinal secretion in high concentration. Gastric juice may at times contain as much as 40 milliequivalents of potassium per liter.[6] The concentration in intestinal juices is usually 8 to 10 milliequivalents per liter.[6a] Normally almost all the potassium in these secretions is absorbed through the mucosa back into the blood, so that the daily feces seldom contain more than 10 milliequivalents. But in diarrhea or vomiting, the losses of potassium may be 10 to 20 times that amount.

3. From 70 to 100 milliequivalents of potassium are usually ingested daily with food. After a meal rich in potassium, the serum potassium level rises slightly but soon subsides to the previous level. In the normal adult person none of this potassium intake is stored; instead it is excreted in the urine.[7] In gastrointestinal disease not only is potassium of the secretions lost with vomiting or diarrhea but the normal ingestion of potassium is prevented, while the kidneys continue to excrete potassium.

4. In starvation, trauma and disease, cellular breakdown occurs. The potassium of these destroyed cells is added to the extracelluar fluid often at a rate greater than that at which it can be removed either by excretion or by transfer to cells.[8] For every gram of nitrogen broken down, about 2.4 Gm. of potassium are released.

5. Glycogenesis carries potassium from extracellular fluid into the cells. This process occurs in specialized tissue that contains glycogen, such as liver and muscle. It is increased by glucose ingestion, by insulin and by epinephrine.[9] The fall in serum potassium levels is rapid (a matter of minutes) but temporary. In the normal persons the change in serum potassium concentration is negligible, but in potassium-deficient persons, like those with diabetic acidosis, the rapid decline of an already low serum potassium concentration may produce serious symptoms. The phenomenon occurs in extreme degree in familial periodic paralysis.

6. Expansion of the extracellular fluid compartment in the treatment of dehydration by intravenous administration of potassium-free fluids produces a rapid lowering of the serum potassium concentration, because of (1) dilution of the extracellular compartment by the injected fluid, (2) influx of water from cells to lower the osmotic pressure of the interstitial fluid and raise that of the cellular fluid and (3) increased excretion of potassium.[10] When the cells have already lost much water some of the transfer of water from the cells is ultimately annulled by transfer of sodium into the cells.

7. When potassium is lost from the body via the kidneys or the gastrointestinal tract, a good portion of it is accompanied by chloride, which has come from the extracellular fluids. This unbalanced loss of extracellular anions is compensated for by a rise in extracellular bicarbonate. That is apparently why acute potassium

---

[3] Elkinton, J. R.; Winkler, A. W., and Danowski, T. S.: Transfers of Cell Sodium and Potassium in Experimental and Clinical Conditions, J. Clin. Investigation **27:** 74, 1948.

[4] Winkler, A. W., and Smith, P. K.: Renal Excretion of Potassium Salts, Am. J. Physiol. **138:** 94, 1942.

[5] Fenn, W. O.: The Role of Potassium in Physiological Processes, Physiol. Rev. **20:** 377, 1940.

[6] (*a*) Randall, H. T.; Habif, D. V.; Lockwood, J. S., and Werner, S. C.: Potassium Deficiency in Surgical Patients, Surgery **26:** 341, 1949. (*b*) Dunham, L. J., and Brunschwig, A.: Calcium and Potassium Content of Secretions from Noncancerous and Cancerous Stomachs, Cancer Research **6:** 54, 1946.

[7] Tarail, R., and Elkinton, J. R.: Potassium Deficiency and the Role of the Kidney in Its Production, J. Clin. Investigation **28:** 99, 1949.

[8] Elkinton, J. R., and Winkler, A. W.: Transfers of Intracellular Potassium in Experimental Dehydration, J. Clin. Investigation **23:** 93, 1944.

[9] Gass, H.; Cherkasky, M., and Savitsky, N.: Potassium and Periodic Paralysis: A Metabolic Study and Physiological Considerations, Medicine **27:** 105, 1948. Fenn, W. O.: The Deposition of Potassium and Phosphate with Glycogen in Rat Livers, J. Biol. Chem. **128:** 297, 1939.

[10] Danowski, T. S.; Peters, J. H.; Rothbun, J. C.; Quashnock, J. M., and Greenman, L.: Studies in Diabetic Acidosis and Coma, with Particular Emphasis on the Retention of Administered Potassium, J. Clin. Investigation **28:** 1, 1949.

deficiency is usually associated with alkalosis.[11] If such alkalosis is treated by administration of sodium chloride solutions, more potassium is lost, if renal function is good, along with chlorides; the alkalosis tends to persist, and edema is produced. On the other hand, administration of potassium chloride raises intracellular potassium concentration and that of extracellular chloride and dissipates the alkalosis.

8. Except possibly in the case of familial periodic paralysis—and maybe even there—a low serum potassium concentration always means potassium deficiency, though the intensity of that deficiency cannot usually be diagnosed from the serum level itself.[12] On the other hand, potassium deficiency may be present when serum potassium concentration is within normal limits or even higher than normal. For example, a 15 per cent loss of potassium from the body (equal to 24 Gm.) may produce a drop of serum potassium from a level of 5.2 milliequivalents per liter to 4.4 milliequivalents per liter, if equilibrium has been established. The latter concentration is still within normal limits. What probably is more important is the fact that conditions associated with severe losses of potassium also produce a breakdown of body tissue; the potassium released from these destroyed cells into the extracellular fluid, in association with dehydration and with limited renal output, may raise the serum potassium concentration momentarily to normal or even higher than normal values. The true state of affairs can usually be recognized by serum potassium analysis after several liters of saline solutions have been administered.

CLINICAL MANIFESTATION OF HYPERPOTASSEMIA AND HYPOPOTASSEMIA

Symptoms of hyperpotassemia chiefly involve the heart. Paresthesias of the extremities and flaccid paralysis have been reported,[13] but in most instances the cardiac observations are the only significant ones. There are characteristic electrocardiographic changes.[14] The T wave becomes increasingly taller with a narrow base; this can be seen with serum potassium levels of 7.5 milliequivalent per liter (29.3 mg. per 100 cc.). With higher levels, as the T wave becomes even higher, the QRS complex becomes progressively broader, indicating intraventricular conduction defect. The P wave may disappear. Ultimately the heart stops in diastole. Death can occur when the serum level reaches 10 milliequivalents per liter (39 mg. per 100 cc.), but reversible changes have been known to occur even at higher levels.[15] It is important to recognize that these changes are due entirely to the extracellular accumulation of potassium. The intoxication may take place even in the presence of severe cellular deficiency of potassium. That is why it is important to administer potassium slowly and preferably via the stomach, even in pronounced deficiency; extreme care is required when renal function is too poor to permit rapid adjustment of the serum potassium concentration.

Since in almost all instances of hypopotassemia there is pronounced cellular deficiency of potassium, many of the symptoms may be due to the latter rather than to the low serum levels.[12] Yet the fact that the muscular paralysis of familial periodic paralysis occurs when the serum potassium level falls as a result of potassium entering the cells makes it certain that the low serum level is responsible for this symptom. In familial periodic paralysis it is usually the muscles of the extremities that are seriously involved; in diabetic acidosis following insulin treatment, it is the respiratory muscles that are affected. Perhaps it is the most fatigued muscles that show the greatest effect of the low serum potassium.

The electrocardiographic observations associated with low serum potassium concentrations are in several respects the opposite of those found with high serum potassium levels and are therefore probably directly due to the low extracellular potassium concentration.[16] There is progressive lowering and broadening of the T wave and lengthening of the Q-T interval. The S-T segment usually becomes depressed. As the serum potassium falls still further a U wave may make its appearance. All these abnormalities may disappear on the raising of the serum potassium concentration by injection of potassium salts.

There are other clinical manifestations associated with low serum potassium levels which are probably produced by the cellular deficiency in potassium. Unfortunately these symptoms are not specific; they may be found in many debilitating conditions. They are extreme muscular weakness, anorexia, lethargy, distention of the intestine, myocardial degenerative changes and edema of the lungs. Often these symptoms become evident after much saline therapy.[17]

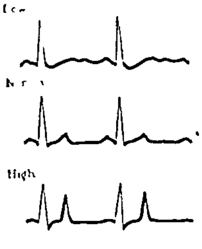


Fig 2—Electrocardiograph changes (idealized) produced by changes in serum potassium concentration, shown for unchanged heart rate

CLINICAL CONDITIONS INVOLVING VARIATIONS IN BODY POTASSIUM

Diabetic Acidosis. — During the development of acidosis,[18] glucose and keto acids are excreted in large quantities, carrying with them much fixed base. There is an accompanying polyuria. In addition, vomiting in these cases enhances the loss of water, fixed base and chloride. The resulting contraction of extracellular fluid volume and lowering of its sodium, chloride and bicarbonate content is well known. But it is now recognized that large losses of potassium also occur, even though the serum concentration at the height of dehydration may not be lowered.[19] The dehydration not only is extracellular accompanied by sodium and chloride loss but is intracellular with potassium and phosphate loss. Treatment in the past has been to give insulin, isotonic sodium chloride solution and alkali, either as sodium bicarbonate or as sodium lactate. In most instances, when the patient has not been dehydrated and acidotic to the point of collapse, this

---

11. Darrow, D. C; Schwartz, R.; Iannucci, J. F, and Coville, F.: The Relation of Serum Bicarbonate Concentration to Muscle Composition, J Clin Investigation **27**: 198, 1948.

12 Danowski, T. S.: Newer Concepts of the Role of Potassium in Disease, Am J. Med. **7**: 525, 1949.

13. Keith, N. M, and Osterberg, A E: The Tolerance for Potassium in Severe Renal Insufficiency: A Study of 10 Cases, J. Clin Investigation **26**: 773, 1947.

14. Winker, A. W.; Hoff, H E, and Smith, P. K.: Electrocardiographic Changes and Concentration of Potassium in Serum Following Intravenous Injection of Potassium Chloride, Am. J. Physiol **124**: 478, 1938.

15. Govan, C. D., Jr, and Weiseth, W. M.: Potassium Intoxication: Report of an Infant Surviving a Serum Potassium Level of 12.27 Millimoles per Liter, J Pediat. **28**: 550, 1946.

16 Nadler, C. S; Bellet, S, and Lanning, M: Influence of the Serum Potassium and Other Electrolytes on the Electrocardiogram in Diabetic Acidosis, Am. J. Med **5**: 838, 1948.

17. Bodansky, O: Recent Advances in Parenteral Fluid Therapy with Ammonium Chloride and Potassium, Am J. M. Sc **218**: 567, 1949.

18. Danowski and others[10] Holler, J. W.: Potassium Deficiency Occurring During Treatment of Diabetic Acidosis, J. A. M. A. **131**: 1186 (Aug. 10) 1946

19. Martin, H. W, and Wertman, A: Serum Potassium, Magnesium and Calcium Levels in Diabetic Acidosis, J. Clin Investigation **26**: 217, 1947.

treatment is satisfactory, for the patient is quickly brought back to consciousness. Then oral administration of milk and orange juice furnishes the necessary glucose, calories and potassium to permit rapid convalescence. In some instances, however, consciousness does not return so fast. In these, further injections of saline and lactate solutions, along with insulin (with or without dextrose) produces a characteristic train of events. First the extracellular fluid is expanded and the serum potassium level falls. The improved renal function produces a further loss of potassium. Then the sudden availability of insulin with its accompanying glycogenesis in liver and muscle produces a rapid transfer of extracellular potassium into these tissues. The consequence of all of these factors is an abrupt fall of serum potassium to a level producing respiratory paralysis and cardiac damage. That is why a number of patients in deep diabetic coma treated this way have appeared to improve at first and have then become worse and died. This catastrophe can be avoided in many instances by the judicious use of potassium chloride along with sodium chloride and sodium lactate. The potassium chloride should be given preferably by mouth or stomach tube, 2 Gm. at a time. It may be given successfully by proctoclysis. If given intravenously, a liter of fluid should not contain more than 2 Gm. of potassium chloride.

TABLE 1.—*Water and Electrolyte Losses in Infantile Diarrhea per Kilogram of Body Weight**

	Total	Extra cellular	Intra cellular
H_2O (Gm.)	125.0	80.0	45.0
Na (mEq.).	9.5	11.2	—1.7
Cl (mEq.)... ..	9.2	9.2	0
K (mEq.).	10.4	0.4	10.0

* Calculated from Darrow's data [20]

TABLE 2.—*Composition of Darrow's Solution*

	Gm per 100 Cc		mEq. per Liter
NaCl.	0.40	Na ..	123
KCl	0.26	K..	35
Sodium lactate ...	0.59	Cl	105
		Lactate	53

Infantile Diarrhea.—Darrow and his co-workers [20] have made balance studies in infants recovering from severe infectious diarrhea. Those infants who were given potassium in addition to sodium, chloride, dextrose and lactate made the most rapid recoveries and had a negligibly low mortality rate. Darrow demonstrated that during the period of diarrhea the losses per kilogram of body weight were water, 125 Gm.; chloride, 9.2 milliequivalents; sodium, 9.5 milliequivalents, and potassium, 10.4 milliequivalents (table 1). The water loss was equal to one half of the total extracellular fluid. However, if one assumes that the lost chloride was all extracellular, then about one third of the lost water came from the cells. The sodium loss from extracellular fluid should have been about 25 per cent more than that of chloride; therefore, that portion of the sodium had not left the body at all but was in the cells replacing part of the 10 milliequivalents of potassium lost from the cells. The loss of potassium represents about 15 per cent of the total body store of potassium. When these infants were treated with fluids not containing potassium, they continued to lose 1 to 1.5 milliequivalents of potassium per kilogram per day; but, if the repair solutions contained adequate quantities of potassium, positive balances of potassium up to eight milliequivalents per kilogram could be obtained in three days. However, Darrow learned that if potassium was given in the presence of circulatory and renal inefficiency, the serum potassium concentration rose rapidly to dangerous levels. Therefore, he recommended initial intravenous infusions of isotonic sodium chloride solution and 5 per cent dextrose along with blood or plasma until circulatory and renal function had been restored. Then he gave subcutaneously a solution containing 0.4 Gm. of sodium chloride, 0.26 of potassium chloride and 0.59 of sodium lactate. This fluid (now called Darrow's solution) can also be given orally, diluted with two parts of five per cent dextrose in water, whenever the clinical condition permits this avenue of administration.

Butler and his associates [21] have come to essentially the same conclusion. Their repair solution is more hypotonic and contains relatively less sodium and more potassium. They, too, recommend initial treatment with saline solution and blood if circulatory and renal failure is present.

Surgical Conditions.—Randall and his co-workers [61] have shown with balance studies preoperatively and postoperatively on surgical patients that the potassium losses were two to three times higher than would be anticipated from the nitrogen loss. Therefore, this extra potassium came from intact cells. The loss occurred not only because of potassium deprivation in the presence of normal urinary excretion but because of removal of potassium by vomiting, suction drainage and diarrhea. In addition to these losses, additional potassium was excreted in the urine as part of the alarm reaction that occurred with the disease and the operative management. These authors found that patients who received, in addition to the usual alimentation with saline solutions, dextrose and amino acid solutions, 2 Gm. of potassium daily preoperatively and postoperatively, did not have negative balances of potassium and for the most part maintained normal serum potassium levels.

Uremia.—As early as 1934 I [2] reported that the serum potassium levels in uremia may be low, normal or high. This observation has been confirmed many times.[22] Modern studies of renal excretion of potassium clarify [23] the causes of this variability of potassium concentration. A normal intake of 70 milliequivalents of potassium requires a potassium clearance of only 10 cc per minute to maintain the normal potassium concentration. Since about 130 cc. of plasma are cleared of potassium by glomerular filtration, the normal kidney must reabsorb more than 90 per cent of the filtered potassium to keep from exhausting the body supply. Actually, even more potassium than is filtered is present in the fluid reaching the reabsorbing tubular cells, for some potassium is also excreted by tubular excretion. *The quantity reabsorbed varies inversely with the serum* potassium concentration, so that excretion is more effective when excess potassium is in the extracellular fluids.

---

[20] Darrow, D. C; Pratt, E. L; Flett, J, Jr; Gamble, A. H., and Wiese, H. F.: Disturbances of Water and Electrolytes in Infantile Diarrhea, Pediatrics 3: 129, 1949

[21] Reyersbach, G C.; Butler, A. M, and Talbot, N B: Persistent Infectious Diarrhea in Infants, Am J. Dis. Child **75:** 450 (March) 1948

[22] (*a*) Sherry, S; Eichna, L W, and Earle, D. P, Jr.: The Low Potassium Syndrome in Chronic Nephritis, J Clin Investigation **27:** 556, 1948 (*b*) Elkinton, J R; Tarail, R, and Peters, J. P.: Transfers of Potassium in Renal Insufficiency, J. Clin Investigation **28:** 378, 1949.

[23] Winkler and Smith [4] Elkinton, Tarail and Peters [22b] Leaf, A. and Eamara, A. O: Renal Tubular Secretion of Potassium in Man, J Clin. Investigation **28:** 1526, 1949 Mudge, G H.; Foulks, J, and Gilman, A.: The Renal Excretion of Potassium, Proc Soc Exper. Biol & Med **67:** 545, 1948. Hoffman, W. S; Bernstein, A; Bernstein, L; Young, Q, and Rose, W Unpublished data

There is probably a hormonal inhibition of this reabsorption. Other factors, such as osmotic diuresis and the excretion of large quantities of acids, also limit the reabsorption of potassium. In nephritis with a diminution of glomerular filtration, potassium filtration becomes diminished, but tubular excretion may not be interfered with to such an extent. Furthermore, tubular reabsorption more distally is less complete because of the rapid flow and because of damage to the tubules. As a consequence the clearance of potassium may remain higher than 10 cc. per minute, even when the glomerular filtration rate is less than that, so long as there is no oliguria (table 3). Since uremic patients usually eat poorly and have frequent spells of vomiting or diarrhea, the total effect may actually be potassium deficiency with low serum potassium concentration. However, if the intake is large, the serum potassium levels may be normal. If oliguria sets in and is associated with tissue breakdown, retention of potassium may occur rapidly. The serum potassium concentration may reach 8 to 10 milliequivalents per liter. In these instances death in uremia is hastened by the toxic action of potassium on the heart. From a clinical point of view potassium in the food is usually harmless, so long as the uremic patient is in a condition to eat well. But medication containing potassium, which in the past has often been used for treatment of uremic acidosis, may quickly prove harmful.

Table 3.—*Renal Excretion of Potassium (at Serum Concentration of 5 mEq. per Liter)*[*]

	Plasma Cleared per Minute, Cc.	Potassium per Minute, mEq.
Normal		
Glomerular filtration...........	130	0.65
+ Tubular excretion (rough estimate)	50	0.25
	180	0.90
— Tubular reabsorption.	170	0.85
Net clearance.......	10	0.05 (= 72 mEq. or 2.8 Gm. per 24 hours)
Uremia Without Oliguria		
Glomerular filtration...........	5	0.025
+ Tubular excretion (rough estimate	15	0.075
	20	0.10
— Tubular reabsorption..	10	0.05
Net clearance............	10	0.05 (= 72 mEq. or 2.8 Gm. per 24 hours)

[*] Possibility of identical excretion of potassium in normal persons and those with uremia but without oliguria.

COMMENT

A final word should be devoted to the principle of repair fluid management. Patients in dehydration have many deficiencies involving both the extracellular and cellular compartments. These include red cells, plasma proteins, water, sodium, chloride, bicarbonate, potassium, phosphorus, amino acids, dextrose and vitamins. Physicians have tended in recent years to attempt massive repair by dumping these constituents into the blood stream by rapid intravenous infusions. Such attempts are based on unsound physiological principles. Utilization by the cells of the proffered constituents is limited by the slow permeability of the cellular membrane and by the disturbance of cellular metabolism produced by intoxication, relative anoxia and alarm reaction.[1a] In addition, such repair is usually initiated when circulation is poor and renal power of selective excretion is limited. Even the repair of the vascular and interstitial compartments must be made at a rate slow enough to avoid overburdening the heart and to prevent the "speed shock" of too rapid a change in the concentration of pharmacodynamically active constituents. In general the quantity and makeup of the intravenous infusions and the order of their administration should be designed to restore vital functions first, such as blood volume, oxygen-carrying power, blood pressure, renal circulation and normal p_H. If such treatment restores consciousness and enables the patient to take fluids and nourishment by mouth, oral alimentation should then become the mainstay of the repair management, particularly with respect to potassium. The use of Ringer's solution instead of istonic sodium chloride solution for the initial injections will at least tend to prevent the dilution of extracellular potassium concentration. If more potassium has to be given intravenously, not more than 2 Gm. of potassium chloride should be present in any liter of venoclysis fluid. No extensive intravenous potassium management should be undertaken unless adequate laboratory facilities are available for quick potassium determinations. In fact, no program of repair management is safe without frequent examinations which include the clinical examination of the patient, determination of the urine volume, specific gravity and p_H, as well as serum analysis for chloride, bicarbonate and, preferably, sodium and potassium.

ABSTRACT OF DISCUSSION

Dr. Helen Eastman Martin, Calif.: Analysis of the etiology of potassium deficits in 150 patients with serum potassium levels under 4.2 milliequivalents per liter, at the Los Angeles County Hospital illustrates all the major mechanisms mentioned by Dr. Hoffman as causing shifts of body potassium. Hypopotassemia, due to either poor food intake or use of nasogastric suction and potassium-free parenteral fluids, developed in 131 of the patients. The average period of time of poor food intake prior to development of a low serum potassium was 16.3 days. Low serum potassium levels developed 5.3 days after institution of nasogastric suction plus 7.5 days of previous poor food intake. Nine of the patients had loss of potassium from the gastrointestinal tract or urine as the major cause of the potassium deficit. Shifts in potassium during treatment of diabetic coma accounted for low serum potassium levels in 10 of the patients. The relation of the acid-base balance was analyzed separately; the importance of alkalosis is seen by the fact that 64 patients had alkalosis. In the last few years my associates and I have treated without difficulty over 500 patients with low serum potassium levels. This includes 50 patients with diabetic coma. Therapy has been mainly by the intravenous route. Dehydration is corrected first, and dilute solutions of potassium salts are given slowly to prevent rapid shifts in the serum level. Concentrated solutions are given only if alarming symptoms, such as muscle paralysis, are present. Such concentrated solutions are administered slowly and cautiously and followed with frequent serum potassium determinations or frequent electrocardiograms. The treatment schedule we have used is as follows: 1. Prophylaxis of potassium deficits (mainly postoperative patients), 3 to 6 Gm. of potassium chloride every 24 hours given intravenously as a 0.1-0.2 per cent solution at rate of 1 liter every one to two hours. 2. Treatment of acute deficits (acute alkalosis, diarrhea), 6 to 9 Gm. of potassium chloride every 24 hours given intravenously as a 0.1-0.2 per cent solution as above. (This includes maintenance dose.) 3. Severe, chronic deficits (mainly surgical patients with loss of gastrointestinal content maintained for days on gastrointestinal suction and potassium-free parenteral fluids), 20 Gm. of potassium chloride every 24 hours given cautiously and intravenously as a 0.3-1 per cent solution or 10 Gm. of potassium chloride every 24 hours intravenously plus 10 Gm. of potassium chloride orally, and 4. Diabetic coma, 2 to 4 Gm. of potassium chloride intravenously as 0.1-0.2 per cent solution. If urine output is adequate, additional treatment with 12 Gm. potassium chloride orally every 24 hours (2 Gm. every four hours) should be started in the second to the fourth hour of coma.

Dr. A. C. Corcoran, Cleveland: Dr. Martin's comments on the value of potassium repletion in the treatment of recovering diabetic coma bring to mind the wisdom of my former chief, Dr. I. M. Rabinowitch, of Montreal, in his routine insistence on the use of salt fat-free broth, 1 cupful every hour on the hour. Some of our visitors seemed to look on this procedure as old fashioned and suggested the substitution of infusions of sodium chloride. However, a favorable clinical course and a low mortality rate prompted Dr. Rabinowitch to maintain his position, and we now find justification for it in the potassium supplied in the broth. The technics of blood chemistry in current use deal only in terms of concentration, whereas the physiology of fluid balance and fluid repletion deals with volumes and contents. It is to be hoped that the technics of the near future may bring to the clinician his guiding answers in terms of fluid compartments. Dr. Hoffman has made valuable contributions to blood chemistry as it exists now. I urge him to participate in this further development. Dr. Darrow has drawn attention to the association of potassium depletion with hypochloremic resistant alkalosis. A recent observation, made in consultation, emphasizes this point. The patient in question had vomited and had a biliary fistula. She had a severe alkalosis and was incontinent and confused. An electrocardiogram, obtained to detect hypopotassemia, was unfortunately mislaid at the outset; the presumption was that this was an alkalosis due to acid loss. A total of 400 milliequivalents of chloride ion as hydrochloric acid was infused during 24 hours. This infusion had effected no substantial change in the patient's clinical condition, in the serum concentrations of chloride and carbon dioxide or in the electrocardiogram. The electrocardiogram was found to show evidence of hypopotassemia. With provision of only 54 milliequivalents (4 Gm.) of potassium chloride, she roused from her coma, her electrocardiogram improved, the serum carbon dioxide substantially decreased and chloride increased to almost normal levels. Thus, an unintentional clinical experiment showed the extreme resistance of the alkalosis in potassium deficiency. In the subsequent nine days the patient received potassium chloride at the rate of 4 to 8 Gm. daily to a total of 40 Gm., or 536 milliequivalents, of potassium. The clinical condition steadily improved. The electrocardiogram was improved but not to normal, and the serum potassium reached a level of only 3 milliequivalents per liter. The patient thus also demonstrated the extreme degree of potassium depletion which may pass unrecognized. Especially does this case emphasize, as do others in the collection of Drs. Proudfit and Ernstene at the Cleveland Clinic, the usefulness of the electrocardiogram in the diagnosis of a hypopotassemic state whenever rapid methods for the determination of serum potassium are not available. Finally, a note on a patient whose renal damage from chronic pyelonephritis made it difficult to excrete not only protein metabolites but the salts which were provided during treatment of dehydration consequent on intestinal obstruction. In this patient the blood urea reached the level of 330 mg. per 100 cc. and the total base 176 milliequivalents during treatment with a mixture of water as 5 per cent dextrose and Ringer's solution in about a 3:1 ratio, liter for liter. A change in the ratio of the fluid repletions to 5 liters of water and 1 liter of Ringer's solution resulted in gradual recession of the blood urea level, an increase in urine volume from 2 to 4 liters, restoration of total base to 140 milliequivalents and progressive improvement with eventual return of the blood urea to nearly normal. Hypertonicity of body fluids due to administration of more electrolyte than this patient could excrete actually increased the existing dehydration and aggravated his renal failure. A urine volume of some 2 liters was in fact inadequate for him, because renal disease increased his minimum effective urine volume. This case demonstrates then the serious effect of relative electrolyte excess and the importance of regulating urine volume, not by rule of thumb but by attention to the level of renal function.

EXHAUSTION IN THE YOUNG BUSINESS EXECUTIVE

Diagnosis and Treatment

SIDNEY A. PORTIS, M.D.
IRVING H. ZITMAN, M.D.
and
CHARLES H. LAWRENCE, M.D.
Chicago

Industry has come to recognize that the toll of death and disability in the management group is excessive. This is evidenced by the report of the Labor Economic Section of General Motors Corporation in 1944[1] that 189 men in that corporation's management group had died in the preceding five years. Realizing that the health maintenance program for the supervisory group had proved inadequate, the corporation set up a program of diagnostic health examinations to prevent this catastrophic loss. The Life Extension Institute reported that of 1,000 holders of life insurance policies in amounts of $25,000 or over who had received extensive examinations since Jan. 1, 1938, of whom 81 per cent were more than 40 years of age, 79 per cent were found to have physical impairments (18.5 per cent of which were high blood pressure and 22 per cent abnormalities of the heart). More recently, Franco[2] reported that periodic health examinations uncovered major medical disease in 25 per cent of executives examined. In *Fortune*[3] for June 1950, there was an article, "Why Executives Drop Dead." It quoted from a report of the Life Extension Examiners of New York that 60 per cent of the executive group examined had conditions requiring a physician's attention, the larger part of them of a cardiovascular nature. In view of the foregoing surveys and others, we should like to present our observations, which may shed light on some disabling factors that, if permitted to go unrecognized, may produce morbidity and mortality of a degree similar to that already reported.

Exhaustion in executives has not been stressed by other investigators in surveys previously published. We became especially interested in this phase of a patient's complaint through our studies on fatigue states as related to a disturbance in carbohydrate metabolism. For many years we have seen young business executives in their early forties or fifties who became utterly exhausted. These executives had many disorders interfering with their efficiency. Apparently they started out in their jobs with all the zest and enthusiasm and ambition to reach a goal which would give them prestige, affluence and security. Most of them were college trained, and many had graduate education preparing them for their life work. Why did men with such drives manifest disabilities at an age at which they should have been most productive? Why did these men live under tension which not only affected them but projected their emotions on employees under their supervision? Why were some departments in industry more productive than others engaged in similar lines of work? Physicians must furnish answers to all these questions if the health

---

From the Medical Department of Michael Reese Hospital.

Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

[1] Lutz, E. F.: Conserving the Health of Management, Occup. Med. **2**: 599-605 (Dec.) 1946.

[2] Franco, S. C.: Periodic Health Examination of Executives, Indust. Med. **19**: 213-219 (May) 1950.

[3] Why Executives Drop Dead, Fortune **41**: 88-91 (June) 1950.

and welfare of executives are to be preserved and if the harmony and safety of their employees are to be guarded at all times.

We therefore undertook a comparative study of the last 50 business executives under the age of 50 who consulted us as patients and of a similar group of executives who were referred to us by corporations for prophylactic examinations.

GROUP OF PATIENTS

The group of executive patients was studied by careful history taking, physical examination and thorough laboratory and roentgenologic investigation to evaluate the clinical picture. It is interesting to note that in 60 per cent (fig. 1) of this group fatigue was one of the outstanding complaints. The evaluation of this complaint is complex, because it is largely subjective and must be evaluated on an individual basis. Heretofore there has not been an objective measurement of this symptom.

In 43.3 per cent (fig. 1) of the fatigued group we found a more rapid disappearance of the sugar from the blood as measured by the three hour intravenous dextrose tolerance test (table 1, fig. 2); in other words, these patients had relative hypoglycemia.

TABLE 1.—*Mean of Blood Sugar Tolerance in 43.3 per Cent of the Fatigued Group*

Time of Test	Blood Sugar Levels, Mg./100 Cc.
Fasting	73.6
½ hr.	118.8
1 hr.	74.8
2 hr.	61.2
3 hr.	56.4

The clinical significance of this has been stressed in previous communications.[4] In 58 per cent of the entire group of executive patients, the third hour blood sugar level was below the initial level, determined during fasting. In some instances there was a drop of 30 to 40 mg. per 100 cc., while in others the drop was between 5 and 15 mg. One severely fatigued executive showed a fasting level of 87 mg. per 100 cc., and at the third hour his blood sugar level had dropped to 44 mg. This relative hypoglycemia has been shown in previous studies to be an effect of overstimulation of the islet cells of the pancreas, mediated by the parasympathetic nervous system via the vagi. Blocking of the vagus nerves with atropine sulfate throughout the 24 hour period has resulted in the elimination of this drop in blood sugar values. Several patients who have had a vagectomy for treatment of peptic ulcer have shown restoration of the intravenous dextrose tolerance curve to near normal. If the autonomic nervous system is involved in this disturbance of function, as these observations suggest, the origin of the disturbance must be in the emotional centers of the central nervous system. The brain is highly susceptible to changes in nutrition. The most important food that the brain uses is sugar. Our studies in fatigue states reveal that when an inadequate amount of dextrose circulates in the blood, the brain does not function properly, the patient becomes high-strung and easily fatigued and the body does not maintain its competence. A more or less constant feature in the life situation of the tired young business executives treated was a loss of zest, loss of enthusiasm and boredom and antipathy for their jobs, business superiors and associates.

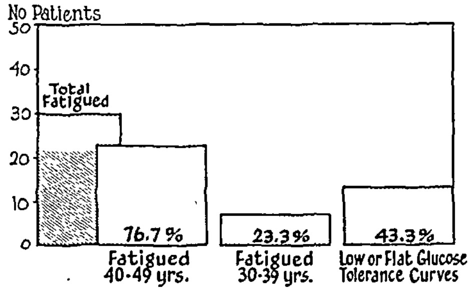


Fig. 1.—Incidence of fatigue in the 50-patient executive group.

Psychological studies have revealed that executives with somatic symptoms are as a rule dependent men whose insecurities and feelings of inferiority are great. Their drives to succeed are a reaction to their intense fears of being inadequate, which are expressed as insatiable ambition, producing somatic symptoms in the gastrointestinal, cardiovascular, respiratory and neuromuscular systems. The executives' interpersonal relations appear adequate on the surface, as far as their business associates are concerned. However, their reaction to their families is frequently hostile, so that their wives and children as a rule are injured. Frenzy and repressed aggression, frequently on an unconscious basis, are present in most such persons, though they manifest strong defenses against expressing their psychological weaknesses. Their capacity for getting pleasure out of life is limited.

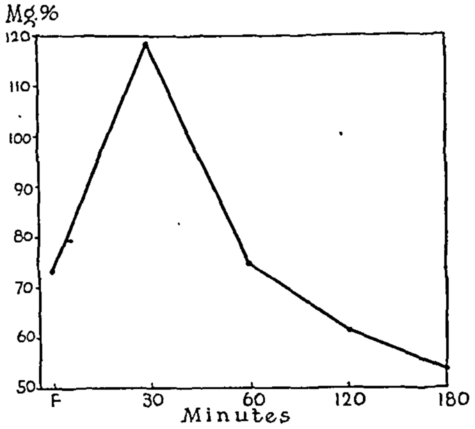


Fig. 2.—Intravenous dextrose tolerance test of the fatigued group. Average of curves of 43.3 per cent of fatigued patients.

Another significant characteristic of the executive's thinking is a fear of failure. Even though the executive can look back with some pride on his accomplishments, there is always apprehension or fear that all will not be the same tomorrow. The fear is not so much of loss of material things as of loss of pride. These psychosomatic manifestations are well illustrated by the following report of an executive patient.

---

[4] Portis, S. A., and Zitman, I. H.: A Mechanism of Fatigue in Neuropsychiatric Patients, J. A. M. A. **121:** 569 (Feb. 20) 1943. Alexander, F., and Portis, S. A.: A Psychosomatic Study of Hypoglycaemic Fatigue, Psychosom. Med. **6:** 191 (July) 1944. Portis, S. A.: The Medical Treatment of Psychosomatic Disturbances, J. A. M. A. **126:** 413 (Oct. 14) 1944; Life Situations, Emotions and Hyperinsulinism, ibid. **142:** 1281-1286 (April 22) 1950.

potassium chloride every 24 hours intravenously plus 10 Gm. of potassium chloride orally, and 4. Diabetic coma, 2 to 4 Gm. of potassium chloride intravenously as 0.1-0.2 per cent solution. If urine output is adequate, additional treatment with 12 Gm. potassium chloride orally every 24 hours (2 Gm. every four hours) should be started in the second to the fourth hour of coma.

Dr. A. C. Corcoran, Cleveland. Dr. Martin's comments on the value of potassium repletion in the treatment of recovering diabetic coma bring to mind the wisdom of my former chief, Dr. I. M. Rabinowitch, of Montreal, in his routine insistence on the use of salt fat-free broth, 1 cupful every hour on the hour. Some of our visitors seemed to look on this procedure as old fashioned and suggested the substitution of infusions of sodium chloride. However, a favorable clinical course and a low mortality rate prompted Dr. Rabinowitch to maintain his position, and we now find justification for it in the potassium supplied in the broth. The technics of blood chemistry in current use deal only in terms of concentration, whereas the physiology of fluid balance and fluid repletion deals with volumes and contents. It is to be hoped that the technics of the near future may bring to the clinician his guiding answers in terms of fluid compartments Dr. Hoffman has made valuable contributions to blood chemistry as it exists now. I urge him to participate in this further development. Dr. Darrow has drawn attention to the association of potassium depletion with hypochloremic resistant alkalosis A recent observation, made in consultation, emphasizes this point The patient in question had vomited and had a biliary fistula She had a severe alkalosis and was incontinent and confused An electrocardiogram, obtained to detect hypopotassemia, was unfortumately mislaid at the outset; the presumption was that this was an alkalosis due to acid loss A total of 400 milliequivalents of chloride ion as hydrochloric acid was infused during 24 hours. This infusion had effected no substantial change in the patient's clinical condition, in the serum concentrations of chloride and carbon dioxide or in the electrocardiogram The electrocardiogram was found to show evidence of hypopotassemia With provision of only 54 milliequivalents (4 Gm) of potassium chloride, she roused from her coma, her electrocardiogram improved, the serum carbon dioxide substantially decreased and chloride increased to almost normal levels Thus, an unintentional clinical experiment showed the extreme resistance of the alkalosis in potassium deficiency. In the subsequent nine days the patient received potassium chloride at the rate of 4 to 8 Gm. daily to a total of 40 Gm, or 536 milliequivalents, of potassium. The clinical condition steadily improved. The electrocardiogram was improved but not to normal, and the serum potassium reached a level of only 3 milliequivalents per liter. The patient thus also demonstrated the extreme degree of potassium depletion which may pass unrecognized. Especially does this case emphasize, as do others in the collection of Drs. Proudfit and Ernstene at the Cleveland Clinic, the usefulness of the electrocardiogram in the diagnosis of a hypopotassemic state whenever rapid methods for the determination of serum potassium are not available. Finally, a note on a patient whose renal damage from chronic pyelonephritis made it difficult to excrete not only protein metabolites but the salts which were provided during treatment of dehydration consequent on intestinal obstruction. In this patient the blood urea reached the level of 330 mg. per 100 cc. and the total base 176 milliequivalents during treatment with a mixture of water as 5 per cent dextrose and Ringer's solution in about a 3:1 ratio, liter for liter. A change in the ratio of the fluid repletions to 5 liters of water and 1 liter of Ringer's solution resulted in gradual recession of the blood urea level, an increase in urine volume from 2 to 4 liters, restoration of total base to 140 milliequivalents and progressive improvement with eventual return of the blood urea to nearly normal. Hypertonicity of body fluids due to administration of more electrolyte than this patient could excrete actually increased the existing dehydration and aggravated his renal failure. A urine volume of some 2 liters was in fact inadequate for him, because renal disease increased his minimum effective urine volume. This case demonstrates then the serious effect of relative electrolyte excess and the importance of regulating urine volume, not by rule of thumb but by attention to the level of renal function.

EXHAUSTION IN THE YOUNG BUSINESS EXECUTIVE

Diagnosis and Treatment

SIDNEY A. PORTIS, M.D.
IRVING H. ZITMAN, M.D.
and
CHARLES H. LAWRENCE, M.D
Chicago

Industry has come to recognize that the toll of death and disability in the management group is excessive. This is evidenced by the report of the Labor Economic Section of General Motors Corporation in 1944[1] that 189 men in that corporation's management group had died in the preceding five years. Realizing that the health maintenance program for the supervisory group had proved inadequate, the corporation set up a program of diagnostic health examinations to prevent this catastrophic loss. The Life Extension Institute reported that of 1,000 holders of life insurance policies in amounts of $25,000 or over who had received extensive examinations since Jan. 1, 1938, of whom 81 per cent were more than 40 years of age, 79 per cent were found to have physical impairments (18.5 per cent of which were high blood pressure and 22 per cent abnormalities of the heart). More recently, Franco[2] reported that periodic health examinations uncovered major medical disease in 25 per cent of executives examined. In *Fortune*[3] for June 1950, there was an article, "Why Executives Drop Dead." It quoted from a report of the Life Extension Examiners of New York that 60 per cent of the executive group examined had conditions requiring a physician's attention, the larger part of them of a cardiovascular nature. In view of the foregoing surveys and others, we should like to present our observations, which may shed light on some disabling factors that, if permitted to go unrecognized, may produce morbidity and mortality of a degree similar to that already reported.

Exhaustion in executives has not been stressed by other investigators in surveys previously published. We became especially interested in this phase of a patient's complaint through our studies on fatigue states as related to a disturbance in carbohydrate metabolism For many years we have seen young business executives in their early forties or fifties who became utterly exhausted. These executives had many disorders interfering with their efficiency. Apparently they started out in their jobs with all the zest and enthusiasm and ambition to reach a goal which would give them prestige, affluence and security. Most of them were college trained, and many had graduate education preparing them for their life work. Why did men with such drives manifest disabilities at an age at which they should have been most productive? Why did these men live under tension which not only affected them but projected their emotions on employees under their supervision? Why were some departments in industry more productive than others engaged in similar lines of work? Physicians must furnish answers to all these questions if the health

---

From the Medical Department of Michael Reese Hospital

Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninety Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

[1] Lutz, E F.: Conserving the Health of Management, Occup Med **2**: 599 605 (Dec.) 1946

[2] Franco, S. C.: Periodic Health Examination of Executives, Indust Med **19**: 213-219 (May) 1950.

[3] Why Executives Drop Dead, Fortune **41**: 88 91 (June) 1950

and welfare of executives are to be preserved and if the harmony and safety of their employees are to be guarded at all times.

We therefore undertook a comparative study of the last 50 business executives under the age of 50 who consulted us as patients and of a similar group of executives who were referred to us by corporations for prophylactic examinations.

GROUP OF PATIENTS

The group of executive patients was studied by careful history taking, physical examination and thorough laboratory and roentgenologic investigation to evaluate the clinical picture. It is interesting to note that in 60 per cent (fig. 1) of this group fatigue was one of the outstanding complaints. The evaluation of this complaint is complex, because it is largely subjective and must be evaluated on an individual basis. Heretofore there has not been an objective measurement of this symptom.

In 43.3 per cent (fig. 1) of the fatigued group we found a more rapid disappearance of the sugar from the blood as measured by the three hour intravenous dextrose tolerance test (table 1, fig. 2); in other words, these patients had relative hypoglycemia.

TABLE 1.—*Mean of Blood Sugar Tolerance in 43.3 per Cent of the Fatigued Group*

Time of Test	Blood Sugar Levels, Mg./100 Cc.
Fasting	73.6
½ hr.	115.8
1 hr.	74.8
2 hr.	61.2
3 hr.	56.4

The clinical significance of this has been stressed in previous communications.[4] In 58 per cent of the entire group of executive patients, the third hour blood sugar level was below the initial level, determined during fasting. In some instances there was a drop of 30 to 40 mg. per 100 cc., while in others the drop was between 5 and 15 mg. One severely fatigued executive showed a fasting level of 87 mg. per 100 cc., and at the third hour his blood sugar level had dropped to 44 mg. This relative hypoglycemia has been shown in previous studies to be an effect of overstimulation of the islet cells of the pancreas, mediated by the parasympathetic nervous system via the vagi. Blocking of the vagus nerves with atropine sulfate throughout the 24 hour period has resulted in the elimination of this drop in blood sugar values. Several patients who have had a vagectomy for treatment of peptic ulcer have shown restoration of the intravenous dextrose tolerance curve to near normal. If the autonomic nervous system is involved in this disturbance of function, as these observations suggest, the origin of the disturbance must be in the emotional centers of the central nervous system. The brain is highly susceptible to changes in nutrition. The most important food that the brain uses is sugar. Our studies in fatigue states reveal that when an inadequate amount of dextrose circulates in the blood, the brain does not function properly, the patient becomes high-strung and easily fatigued and the body does not maintain its competence. A more or less constant feature in the life situation of the tired young business executives treated was a loss of zest, loss of enthusiasm and boredom and antipathy for their jobs, business superiors and associates.

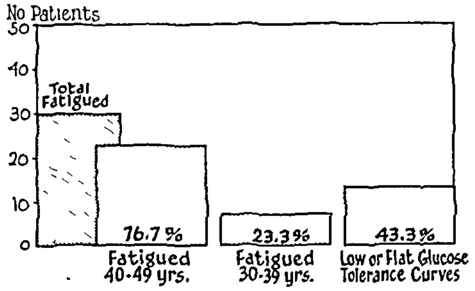


FIG. 1.—Incidence of fatigue in the 50-patient executive group.

Psychological studies have revealed that executives with somatic symptoms are as a rule dependent men whose insecurities and feelings of inferiority are great. Their drives to succeed are a reaction to their intense fears of being inadequate, which are expressed as insatiable ambition, producing somatic symptoms in the gastrointestinal, cardiovascular, respiratory and neuromuscular systems. The executives' interpersonal relations appear adequate on the surface, as far as their business associates are concerned. However, their reaction to their families is frequently hostile, so that their wives and children as a rule are injured. Frenzy and repressed aggression, frequently on an unconscious basis, are present in most such persons, though they manifest strong defenses against expressing their psychological weaknesses. Their capacity for getting pleasure out of life is limited.

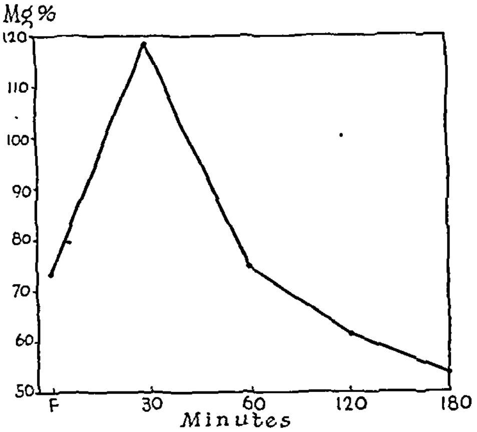


FIG. 2.—Intravenous dextrose tolerance test of the fatigued group. Average of curves of 43.3 per cent of fatigued patients.

Another significant characteristic of the executive's thinking is a fear of failure. Even though the executive can look back with some pride on his accomplishments, there is always apprehension or fear that all will not be the same tomorrow. The fear is not so much of loss of material things as of loss of pride. These psychosomatic manifestations are well illustrated by the following report of an executive patient.

---

[4] Portis, S. A., and Zitman, I. H.: A Mechanism of Fatigue in Neuropsychiatric Patients, J. A. M. A. **121:** 569 (Feb. 20) 1943. Alexander, F., and Portis, S. A.: A Psychosomatic Study of Hypoglycaemic Fatigue, Psychosom. Med. **6:** 191 (July) 1944. Portis, S. A.: The Medical Treatment of Psychosomatic Disturbances, J. A. M. A. **126:** 413 (Oct. 14) 1944; Life Situations, Emotions and Hyperinsulinism, ibid. **142:** 1281-1286 (April 22) 1950.

REPORT OF CASE

A business executive, 37 years of age, had felt well until nine days prior to consultation, when at 3:30 p. m., as he was walking through the factory, he suddenly felt light-headed, began to perspire and noticed quickening of his heartbeat. His legs felt weak and he had to sit down. The company physician found his systolic blood pressure at that time to be 110. He was taken to the hospital, where an electrocardiogram and blood count were within normal limits. He remained in the hospital only one hour. However, after that time he continued to feel weak and tired; he became light-headed when up and around but felt normal when lying down. It tired him to walk one block, but he experienced no shortness of breath. He stated that on the day preceding the onset of these symptoms he thought he had overexerted himself. His muscles ached and felt dull, as though they were tired, and he noticed a peculiar sensation over the middle anterior part of the chest. This sensation disappeared almost entirely, yet walking a half block still brought on a "choked-up" feeling.

Physical examination revealed nothing of clinical significance. Except for the intravenous dextrose tolerance test (fig. 3), thorough laboratory and roentgenologic studies gave normal results. The dextrose tolerance curve, however, resembled the so-called "flat curve" which we had previously observed in fatigue patients. This "flat curve" is characterized by a lower than normal level at the half-hour determination and failure of the blood sugar to return to the fasting level in three hours.

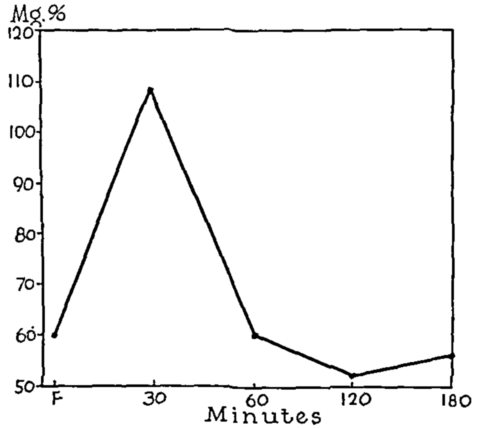


Fig. 3.—Intravenous dextrose tolerance test of patient aged 37.

Because we were interested in discovering what precipitated the acute condition which had persisted for nine days, we inquired into the psychological factors which might have brought about the breakdown. We found that the patient was employed by a concern which had decided shortly after the war that a plant in a small town would be better suited than their current plant to their specifications and purposes. They moved their key employees into a small community, built homes for them and set them to work. For the first few years of operation of this plant, operations went at top speed and with the smoothness of a fine watch. However, after four or five years the management found that efficiency in the plant was lowered. There had been no change in the capabilities of the executives; they were still young and still able to do a job, but they now were becoming tired, befuddled and irritable. The chief executive, at the age of 37, had noticed that in the early midportion of the afternoon he experienced acute fatigue. He began to suffer from precordial distress; he resorted to chain smoking and felt exhausted when he came home at the end of the day. His wife was struggling along with three children and no diversification in her day's work. When she would have liked a break in the monotony of her domestic life, she found that her young husband was content to sit around and recover from the fatigue of his daily efforts in the plant. This furnished a desirable escape mechanism for him. The situation was aggravated by lack of adequate social outlets, since the couple could not become too closely associated with the younger executives because of the danger that such personal relations would be detrimental to efficiency in business.

Analysis of this executive's life situations showed him to have the aggressive, dependent type of personality commonly seen among executives. The patient's mother had died when he was 9 years of age, and he had been passed from one relative to another until his father remarried two years later. He had been a football player and had subsequently married, had three children and become successful, rising to be executive director of a plant employing 400 workers. The onset of his complaint coincided with the development of a fatigue syndrome in his wife, who was distinctly bored and unhappy with life in a small town and who complained bitterly of the lack of social and intellectual diversion.

What does all this add up to? On the one hand, the business of the plant was conducted more efficiently and production costs were lower than in its previous location. On the other hand, at the end of five years its top executives were distinctly bored and tired and sooner or later became inefficient. Of course management and business must get a fair return on their capital investments or they will not be able to enlarge, modernize or expand their plants. But business should realize that highly developed, highly skilled workers must have some chance for diversion in their life outside the plant. This may mean that management may not profitably locate plants in areas where the labor market is good if the price they have to pay is a breakdown in the efficiency of their top executives.

SURVEY OF CORPORATIONS

For comparison with the group of executive patients, we studied 55 executives under the age of 50 who were referred to us by corporations for prophylactic examination. These were subjected to a routine check-up consisting of a careful history of any complaints, previous illnesses, the last time a complete medical examination was made and any facts pertinent to an accurate inventory of any patient. A complete physical examination was made, and deviations from normal were noted. This was supported by the following laboratory tests: Urine and stool analyses, complete serologic study, blood counts with differential, electrocardiogram, 2 meter roentgenogram of the chest to determine the exact size of the heart and condition of the lungs and determination of the basal metabolic rate. After the completion of this routine investigation, each person was interviewed at length, and a life survey was made for pertinent facts leading up to the present job situation. This included questions on early childhood, family environment, education, jobs previously held and reasons for leaving, marital status, home life, home environment, frequency and length of vacations, use of leisure hours, avocation and present position. The study included the subject's relations to superiors, equals and those for whose productivity he was responsible, the number of employees under his supervision and his attitude toward these employees.

Emotional Status.—We were particularly interested in evaluating emotional status in the relationships of the subject's everyday life. Early childhood patterns of many of these persons were found to be factors in the later development of insecurities, which were prevalent and which interfered with their efficiency.

The average businessman, if he is in apparently good health, does not go to a physician of his own volition. Twenty-eight of 55 of the executives included in this study had not had a physical examination within the preceding two years. The predominant reason appears to be that everyone thinks his or her organs are superior, although he knows less about the workings of the human body than he does about an automobile. He does not take into consideration the fact that, although one can get new parts for an automobile, no new parts have been developed for the human machine at the present writing. The intelligent person who has an automobile will take that machine into a service station every one or two thousand miles to have it oiled, greased and checked, but he does not give equivalent care to his own body.

It is apparent that industry has a real stake in the management group, in which it has made a large investment. Moreover, the efficiency of workers is definitely related to the physical and emotional stability of their immediate superiors. Yet how many corporations and companies insist on periodic medical examinations for their executives? Review of the literature reveals that only a small percentage of corporations insist on and provide facilities for periodic medical examinations of their management group.

The executive who knows his job well should be able to work with the ease and precision of a well oiled machine. But the executive who has the ability and is disturbed by some emotional factor finds his efficiency definitely impaired and usually resorts to artificial stimulants to whip up his system; thereby he drives his body beyond the limits of its factors of safety. In the human body the factors of safety are no different from those of steel, wood or any other structural material. A certain load can be tolerated, but beyond the limits of stress the compensatory mechanism no longer functions and the body begins to show wear and tear. A man aged 40 or 50 therefore may find himself in the physiological group of men aged 60 or 70.

Physical Observations.—This survey revealed that 29.1 per cent (fig. 4) of the group had hypertension and 27.4 per cent obesity; electrocardiograms were abnormal in 12.7 per cent and on the borderline in 10.9 per cent. Of the whole group, only 5.4 per cent were considered entirely normal, without any physical defects. These figures compared favorably with those of Lutz,[5] who reported abnormality in 82 per cent of his group of executives. Our survey revealed two important facts: first, the lack of adequate medical study prior to this study, and second, the high incidence of asymptomatic organic disease. Lutz [5] reported also that in 41 of 55 patients with diseases of the cardiovascular system there were no symptoms. Fatigue in our referred group was noted in 10.9 per cent as contrasted with 60 per cent in the patient group. Similar surveys in the literature have not emphasized the factor of fatigue.

ETIOLOGICAL FACTORS

It is our observation that the person whose occupation is largely sedentary and primarily mental usually does not have good eating habits. Many an executive will rush to work without an adequate breakfast, although he is in a field of endeavor in which food is of paramount importance because he is using his brain constantly. Breakfast is one of the most important meals of the day because in the morning most persons have fasted for 12 or 14 hours and because physiological studies have shown only enough dextrose reserve in the body for 12 hours. The executive may find that he becomes a little tired and irritable in the midmorning because of lack of adequate food. His luncheon should be well balanced and not hurried. Frequently in the middle of the afternoon he will find himself growing more irritable, and by 4:00 or 5:00 o'clock he again is tired and restless, and his efficiency is definitely impaired, probably because his luncheon was inadequate. We have previously reported on the relation of fatigue states to accidents, and it has been clearly shown that frequent feedings are necessary for their prevention.

Another factor enters into the picture at this stage. Many an executive becomes a chain smoker because the primary effect of tobacco on the carbohydrate-regulating mechanism is to raise the blood sugar level. Unfortunately, excessive use of tobacco has a secondary effect: it depletes the blood sugar level and causes relative hypoglycemia. This is the reason why chain smokers frequently feel faint and giddy, sometimes even having cold sweats and syncopal attacks. As a rule a chain smoker is irritable, shows evidence of high tension and suffers from wear and tear on the heart muscle not only as an effect of increased tension on the coronary circulation but because the myocardium requires a normal amount of circulating dextrose for its maintenance.

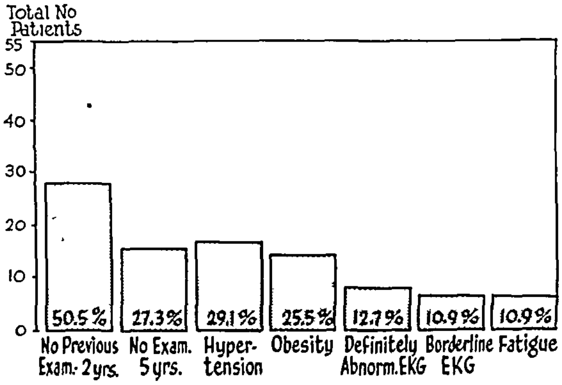


Fig. 4.—Prophylactic corporation survey.

Habein [6] noted that 62 per cent of executives smoke more than a package of cigarets a day, 27 per cent two packages and 21 per cent more than two packages. Raymond Pearl,[7] one of the world's greatest authorities on longevity, has noted that one of five heavy smokers between the ages of 30 and 50 dies before his time.

Finally, at the end of the day, the executive goes to the nearest bar and sits down for several drinks. The sense of well-being that follows a cocktail hour is due to the fact that alcohol tends to stabilize the emotional household by removing cortical inhibitory influences.

TREATMENT

The philosophical approach to the treatment of exhausted executives would naturally entail the eradication of factors which brought on and magnified the fatigue states. Dietary and pharmacologic measures have been employed to normalize the disturbed carbohydrate metabolism. The accompanying diet (table 2) is therefore suggested for patients with uncomplicated fatigue.

To stabilize the disordered carbohydrate metabolism of the exhausted patient, we have used atropine and phenobarbital in suitable doses throughout the 24-hour period, to reduce the effect of parasympathetic stimulation on the islet cells of the pancreas.

---

[5] Lutz, E. F.: Health Examination of Industrial Executives, Indust. Med. 17: 65-69 (Feb.) 1948.

[6] Habein, cited by Alvarez, W. C., in Medical Care of Executives, Illinois M. J. 83: 4 (April) 1943.

[7] Pearl, R., cited by Alvarez, W. C., in Medical Care of Executives, Illinois M. J. 83: 4 (April) 1943.

Since the manifestation of fatigue is in part a psychosomatic problem, one wonders whether affected executives should be treated by psychiatrists or whether their problems may be superficial enough to be handled by their personal physician. If the physician is well enough informed on psychiatric problems, he may point out to the patient the factors which produce the disability, but if the emotional picture is complex and the patient is exceedingly disturbed, a dynamically oriented psychiatrist should be consulted. Many business organizations now hire psychologists as either personnel advisors or industrial psychologists. This is a good form of industrial hygiene.

SUMMARY

Fifty business executives under 50 years of age who sought medical care for various reasons and 55 similar subjects referred by their employers for routine check-up have been compared as to physical condition, laboratory observations, roentgenologic evidence of abnormality and emotional status.

Table 2.—*Suggested Diet for Fatigued Executive*

Foods to include daily:

Cereal and bread	Whole grain or enriched, four servings or more
Meat, poultry or fish	Two servings or more
Eggs	At least three a week
Vegetables	At least two servings a day; one serving or more should be of a green or yellow vegetable
Potatoes	One serving or more
Fruits	At least two servings; one serving should be of citrus fruit or melon; the syrup of canned fruits should be avoided
Milk	One pint or more
Water	Six to eight glasses, which may include coffee and tea
Desserts	Fruit as specified, simple puddings, fruit gelatin, simple cakes (sponge or pound cake without icing), simple cookies
Fats	As needed and desired

Foods to avoid:

Sugar, candy, pie, pastries, jelly, honey, jam, syrup, alcoholic and carbonated beverages

Sample Menu

Breakfast	Luncheon	Dinner
Orange juice	Tomato juice	Chicken broth, rice
Oatmeal	Broiled lake trout	Broiled lamb chops
Poached egg	Asparagus	Baked potato
Toast	Combination salad with dressing	Julienne carrots
Butter	Bread	Perfection salad
Coffee	Fruit cup	Bread
No sugar	Butter	Butter
	Tea or coffee	Baked custard
	No sugar	Tea or coffee
		No sugar

10 a. m. Milk, 6 oz. 3 p. m. Milk, 6 oz.
Bedtime Milk, 6 oz.; crackers, cereal or toast; fruit

Note: The patient may smoke after meals but never on an empty stomach.

Fatigue was one of the outstanding complaints in the group of patients studied. It is often related to a disturbance of carbohydrate metabolism and to faulty dietary habits.

Life situations play an important role leading to exhaustion in executives. A dietary and pharmacologic approach to the therapy of exhaustion has been suggested. The role of alcohol and tobacco has been discussed.

CONCLUSIONS

We present evidence to show that executives do become exhausted. Frequently organic disease may progress unnoticed. The stress and strain of superimposed emotional factors on well balanced organic defects give rise to symptoms which cause the patient to seek medical care.

Industry should insist on periodic health examinations of executive personnel, since asymptomatic organic illness often is disclosed by prophylactic examination. Management also must recognize the need for psychological and psychiatric counseling in guarding the well-being of its executive talent for long term efficiency.

Physicians must approach the problem of disturbed physiological balance with sympathy and understanding. Fatigued patients should not be dismissed with a diagnosis of "functional disease." If the common sense of the family physician of the past is combined with the scientific knowledge of today's laboratory trained physician, it may help to solve some of the problems which confront industry.

104 South Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr W. P. Shepard, San Francisco: To my knowledge this is the first time that we have had pointed out the fatigue syndrome in this type of person. Whether or not we are dealing with a new clinical entity, it certainly is complicated and will need much more investigation. I should like to see a comparison of the occurrence of these symptoms among nonexecutives. I should like to see whether the leaders, foremen and major subordinates may show about the same type of clinical complex, or whether it occurs solely among major executives. Recently there have been studies made of the effect of different company practices on the strain resulting on all employees, including the executives. Among these, Dr. Sawyer has published an interesting summary of vacation practices. We do not know what it is that brings a man to the breakdown point. Although every mechanism, including the human, has a breaking point, it isn't safe to experiment with the human mechanism. Probably we got more data on this subject from the military during the war than any other one place, and we are seeing much the same type of thing in the young executive. We need to have a better way of calibrating man's ability to withstand stress. I hope that this is the start of larger group studies of this kind and that we will eventually have more data on this problem.

Dr. Sidney A. Portis, Chicago: Fatigue is a pleomorphous symptom. Not only is it associated psychologically with factors of security, but for the most part it is seen in persons who suffer from boredom, who lose their zest and enthusiasm. It may develop in unpleasant social situations. It may develop because of the mere thought of doing certain types of work. The average person who is enthusiastic seldom feels tired. In an emergency situation, a person can undergo an unusual emotional strain and expend an unbelievable amount of energy without feeling correspondingly tired. In practically every patient who has a disturbed dextrose metabolism associated with fatigue, as a rule the three hour blood level is below the fasting level, and in many instances there may be a difference as great as 30 mg. per 100 cc. In the series of patients reported in this paper, the average curves were distinctly lower than those seen in a large group of persons previously reported as relatively normal. One can subject a normal person to boredom, and his blood sugar level may drop 10 to 15 mg. per 100 cc. while he is under the influence of that boredom. This observation had been made and reported by previous workers. These exhausted business men were given some insight into their life situations, were put on a suitable diet and were given medicaments as needed, to the end that they did a better job, were more efficient, were happier and, what is more important, lost their fatigue. It is important to have a philosophical approach to this whole problem. These business executives are tired, but this tiredness is not entirely dependent on organic disease. We must recognize that life situations, both within and without business, play an important role. The fatigued executives come to us for help. We must approach their problem with an open mind. Nobody wants to be ill. Nobody is sick unless there is a cause, whether it be functional or organic. Whatever the basis, it is our job as physicians to rehabilitate this group of young business executives in order that they do not lose their efficiency too early in life.

BEDSIDE MANAGEMENT OF PROBLEMS OF FLUID BALANCE

BELDING H. SCRIBNER, M.D.
MARSCHELLE H. POWER, Ph.D.
and
EDWARD H. RYNEARSON, M.D.
Rochester, Minn.

It is our purpose in this paper to describe a practical clinical routine for the accurate determination of water and chloride balance and to demonstrate how such balance data may be employed to determine water and electrolyte dosage in difficult problems of fluid balance.

It is critically important to attempt to maintain normal water and electrolyte balance in severely ill patients. Yet this is often difficult to accomplish in patients with a lowered cardiorenal reserve, acute infection, oliguria, prolonged severe illness or large losses of bowel fluid. In this paper we are concerned with the difficult problem of determining daily salt (sodium chloride) and water requirements in these complicated conditions. The management of such patients is difficult because the usual criteria for determining salt and water needs that may be satisfactory in the routine case are often inadequate when complications are present. There are three reasons for this:

1. Determinations of the concentration of plasma sodium, chloride and bicarbonate are of limited value as a basis for planning fluid and electrolyte therapy because they can be misleading.[1] For example, a patient may be grossly edematous and therefore have too much salt in his body but at the same time have normal concentrations of plasma electrolytes.

2. The most commonly used criteria of salt and water needs are the clinical signs and symptoms of electrolyte imbalance. Though helpful when present, they are inadequate because they are insensitive. Stewart and Rourke [2] have shown that a normal subject may retain 700 milliequivalents of extra sodium chloride without becoming detectably edematous. Yet edema is about the only available clinical sign of sodium chloride overdosage. Others have found that a normal subject may lose 600 milliequivalents of sodium chloride before depletion of electrolytes becomes detectable by clinical observation.[3] Thus the total body content of sodium chloride can fluctuate over a range of as much as 1,300 milliequivalents without its being apparent clinically. Fluctuations of this magnitude might be harmful to severely ill patients.

3. Serial determinations of body weight, a sensitive index of fluctuations in total body water, give no direct information about changes in the amount of sodium and chloride in the body because large fluctuations in the amount of intracellular water also occur.[4] What is more important, it is often impractical to weigh severely ill patients, especially if they are in the postoperative period.

There is, therefore, a need for more exact methods of determining the daily requirements of water and electrolyte in patients with complicated problems of fluid balance. To meet this need a new approach to the clinical management of parenteral fluid therapy has been devised. This approach is based on the accurate measurement of the intake and output of chloride. The aim of parenteral salt and water therapy is to maintain the total amount of salt and water in the body at a normal or desirable level. Since this level will be maintained if the intake of water and salt equals the output, an accurate measurement of the output of these substances can be used as a basis for planning intake. Furthermore, the difference between the intake and output of chloride —that is, the chloride balance—is an absolute measure of changes in the total body chloride. Therefore the chloride balance is a reasonable basis for detecting fluctuations in the amount of salt in the body that are not detectable by the other methods previously mentioned. Because of this, the determination of chloride balance has been used as a tool in the clinical investigation of electrolyte metabolism.[5]

The application of chloride balance technics to the clinical management of problems of fluid balance has not been practical in the past because of the expense and technical difficulties of obtaining chemical determinations. However, a new method for the rapid, accurate determination of chloride at the bedside makes the measurement of chloride balance a practical clinical procedure.[6] The method is based on the direct titration of the chloride with mercuric nitrate. The end point is a sharp purple color that is easily seen. Reagents are stored in small bottles which are taped together to form a portable test set. Solutions are measured with tuberculin syringes which fit into the caps of the bottles. Results of determinations are read directly from the scale of the syringe and are available within about a minute after specimens are obtained. Duplicate determinations on plasma agree within plus or minus 1 per cent. Nearly comparable accuracy is possible on other fluids, such as urine or liquid stool. Results obtained by the bedside method compare favorably with those obtained by standard chloride methods. The accuracy of the determination may be checked at any time, since a bottle of standard salt solution is included in the test set.

METHOD FOR DETERMINATION OF WATER-CHLORIDE BALANCE

Accurate determination of the intake and output of water is often difficult and sometimes discouraging. The fact that the chloride balance can now be determined simply, provided the intake is known and the specimens of excreta are accurately saved, creates a new need for a practical hospital routine for obtaining accurate data on intake and output. A routine has been evolved that seems to meet this need. The routine is a definite departure from the usual nursing procedure of collecting, measuring, discarding and recording of each specimen. Rather, all excreta are saved by the nurses in labeled containers and are later measured and analyzed for chloride at the bedside by the physician or other person conducting the study. The routine also provides a double check on the determination of water and chloride intake.

The reliability and usefulness of the balance data obtained by this routine will, of course, depend directly on the completeness of collections of specimens and the accuracy of charting

---

Read before the Section on General Practice at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

Fellow in Medicine (Dr. Scribner); from the Division of Biochemistry, Mayo Foundation (Dr. Power), and from the Division of Medicine, Mayo Clinic (Dr. Rynearson).

[1] Abbott, W. E.: A Review of the Present Concepts on Fluid Balance, Am. J. M. Sc. **211:** 232-239 (Feb.) 1946.

[2] Stewart, J. D., and Rourke, G. M.: The Effects of Large Intravenous Infusions on Body Fluid, J. Clin. Investigation **21:** 197-205 (March) 1942.

[3] (*a*) Marriott, H. L.: Water and Salt Depletion, Springfield, Illinois, Charles C Thomas, Publisher, 1950. (*b*) McCance, R. A.: Experimental Sodium Chloride Deficiency in Man, Proc. Roy. Soc., London, s. B. **119:** 245-268 (Feb. 1) 1936. (*c*) Van Slyke, K. K., and Evans, E. I.: The Significance of Urine Chloride Determination in the Detection and Treatment of Dehydration with Salt Depletion, Ann. Surg. **128:** 391-405 (Sept.) 1948.

[4] Nadal, J. W.; Pedersen, S., and Maddock, W. G.: A Comparison Between Dehydration from Salt Loss and from Water Deprivation, J. Clin. Investigation **20:** 691-703 (Nov.) 1941.

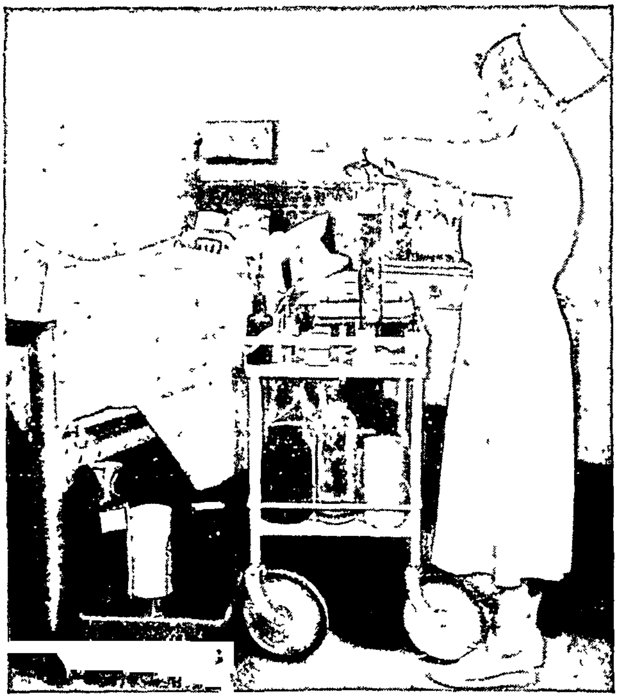
[5] Winkler, A. W.; Danowski, T. S.; Elkinton, J. R., and Peters, J. P.: Electrolyte and Fluid Studies During Water Deprivation and Starvation in Human Subjects, and the Effect of Ingestion of Fish, of Carbohydrate, and of Salt Solutions, J. Clin. Investigation **23:** 807-815 (Sept.) 1944.

[6] (*a*) Scribner, B. H.: Bedside Determination of Chloride: A Method for Plasma, Urine and Other Fluids and Its Application to Fluid Balance Problems, Proc. Staff Meet., Mayo Clin. **25:** 209-218 (April 26) 1950. (*b*) Since a description of the bedside chloride method was published, it has been found advisable, when making up the mercury reagent, to use double the quantities of concentrated nitric acid originally suggested.

of intake by the nurses. The importance of their part in the study should be emphasized by pointing out that the treatment and therefore the welfare of the patient depend directly on the reliability of their work. It also can be emphasized that this nursing routine involves less work than does the old method of determining intake and output.

The routine will work only if there is close cooperation between the nursing staff and the person conducting the study. The duties of each should be clearly delegated; the nurses should be carefully coached and given a written summary of their duties.

Duties of the Nursing Staff.—1. All excreta are saved in clearly marked containers[7] which are supplied by the person conducting the study. Since that person will measure the specimens, the nurses are relieved of the unpleasant task of charting and totaling outputs. To insure that all specimens are saved it is helpful to affix a sign over the patient's toilet directing that nothing be discarded.



A fluid balance technician is shown analyzing a specimen of gastric fluid for chloride. She is in the process of completing a water-chloride balance sheet on this patient. The cart is used to transport containers It also serves as a place to work

2. If specimens are lost either through incontinence or by being discarded by mistake, the nurse must make an estimate of the volume of fluid lost and note it on the record. Although such estimates are rough, they have proved sufficiently accurate to be used to complete the balance study. However, losses through incontinence must be kept at a minimum if the data are to be reliable, and every precaution should be used to avoid such losses. Uretheral catheters should be used for patients with urinary incontinence. Collection cups, continuous suction devices and tubes can be employed to make collections from gastrointestinal fistulas fairly complete.

3. Frequent notations on the amount of visible perspiration should be made. If the bedclothes are changed because of sweating this should be noted. These notes form the basis for the estimate of insensible loss.

4. Complete charting of the type and amount of all parenterally administered fluids is essential. As a double check, all empty parenteral fluid bottles are saved to be checked later by the person doing the balance study.

5. The nurses should keep as accurate an account as possible of oral intake of fluid and food. A graduated cup or glass aids in determining the oral intake of fluids. The help of the patient or his relative should be enlisted in keeping an accurate account of oral intake.

6. Fluid used to irrigate suction tubes may be taken from a graduated liter bottle supplied and refilled by the person conducting the study. This obviates charting of irrigation volumes by the nurses. Irrigation returns are simply mixed with the other aspirate.

Duties of the Fluid Balance Technician.—The person conducting the study who supplies the containers and completes the determination of water-chloride balance is known as the fluid balance technician. In small hospitals where there is only an occasional patient requiring such studies, the physician or intern may himself act as the fluid balance technician. In larger hospitals it may be advisable to organize a hospital fluid balance service and train a person, preferably a nurse, to be a fluid balance technician. This is not difficult because the bedside chloride test used to analyze the specimens is simple and requires no prior knowledge of chemistry. Nurses so trained have capably carried out the duties of the fluid balance technician in the hospitals in Rochester, Minn. In one 1,000 bed hospital where perhaps 100 major surgical procedures a week are done, the number of patients on the fluid balance service averages 15 to 20 at any one time. The fluid balance technician, using a hospital cart as a table, (see the illustration) visits each of these patients each day and performs the following duties:

1. The technician accurately measures the volume of all excreta that have been saved. Each specimen is then analyzed for chloride by the bedside method[6a] and for p_H by the use of indicator paper.[8] Results are assembled, calculated and then recorded on a form such as that shown in table 1. This form is known as a water-chloride balance sheet. The total chloride output is calculated by multiplying[9] the concentration of chloride in the specimen by the total volume.

2. The technician totals and enters in the output column an estimate of all losses through spillage and incontinence as determined from the nurses' notes. An example of such an estimate is the "Estimated urine lost" entry in table 1. For the purpose of calculation, the chloride concentration and the p_H of the specimen lost are assumed to be the same as those of the specimen saved and analyzed

3. Insensible and sensible losses of water and chloride are estimated on the basis of the amount of visible perspiration as noted in the nurses' notes and as determined by questioning the patient. The estimates are made according to the schedule shown in table 2. This schedule has been drawn up tentatively and is based on the literature[10] and on limited experience in the estimation of insensible loss from serial weighings of the patient.[11] The values for chloride in sweat are based on the data of McCance[12] and others[13] They are intended only as approximations, since the chloride content of sweat varies widely; the chloride estimates are, if anything, too high, especially in the case of patients who are acclimatized to a hot environment.

We have had no experience with the determination of sensible and insensible loss at high environmental temperatures Under such conditions our schedule may have to be revised upward because, in dry climates especially, a patient may sweat continually without its being apparent to him or his nurse Wiley and Newburgh[14] estimate that when the environmental temperature is above 30 C. the insensible loss of an average man may increase about 500 ml. of fluid per twenty-four hours for every 1 degree Centigrade rise in environmental temperature.

---

[7] A dropperful of formaldehyde U. S. P. added to each container helps reduce the odor and preserve the p_H of the specimen

[8] A good indicator paper for this purpose is Accutint-Wide Range B, made by Anachemia Ltd, Montreal, Canada.

[9] Learning to do the multiplication on a 50 cent plastic slide rule is easy and worth the slight effort involved, because so much time is saved in completing the calculations

[10] Adolph, E. F.: Physiological Regulations, Lancaster, Pa, Cattell & Co, Ltd, *1943, p. 100* *Mariott*[3a]

[11] Newburgh, L. H.; Johnston, M. W., and Newburgh, J D: Some Fundamental Principles of Metabolism, ed. 2, Ann Arbor, Mich, Edwards Brothers, Inc, 1945.

[12] McCance, R. A.: The Effect of Salt Deficiency in Man on the Volume of the Extracellular Fluids, and on the Composition of Sweat, Saliva, Gastric Juice and Cerebrospinal Fluid, J. Physiol **92:** 208-218 (March) 1938.

[13] Freyberg, R. H., and Grant, R. L.: Loss of Minerals Through the Skin of Normal Humans when Sweating Is Avoided, J. Clin Investigation **16:** 729-731 (Sept.) 1937.

[14] Wiley, F. H., and Newburgh, L. H.: The Relationship Between the Environment and the Basal Insensible Loss of Weight, J. Clin. Investigation **10:** 689-701 (Oct.) 1931

The insensible loss actually may be determined by using water balance data and daily weights.[11] Sometimes a gross underestimate of the insensible loss can be detected from the balance sheet if it shows an unexplained water retention in the presence of a normal volume of urine.

4. Parenteral intake of water and chloride is determined by comparing the nurses' notes with the labels on the empty parenteral fluid bottles that have been saved. The volume, type of fluid and chloride content, including added salts such as potassium chloride, are recorded in the intake column of the balance sheet.

5. The oral intake of water is determined from the nurses' notes. By assuming that food is 100 per cent water, the calculation is simplified. The error introduced by this assumption is small and is usually roughly canceled by the daily water of oxidation, which is also neglected.

6. If it is desired that chloride balance be studied on patients getting a large part of their intake by mouth, it is possible to estimate with sufficient accuracy the oral intake of chloride. Simple broths and tube-feeding formulas may be analyzed directly by the bedside method.[6a] The chloride content of food can be obtained from dietary tables or, if salt is added in cooking, from the dietitian. Salt added by the patient may be determined by having him use a salt shaker made from a Sanford-Magath hematocrit tube. (A perforated paper held over the end with a rubber band converts such a tube to a satisfactory salt shaker.) By weighing the amount of salt in a tube, the number of milliequivalents of chloride that is represented by each division on the scale of the tube may be determined. For common table salt this figure averages about 2.2 milliequivalents per division. By noting the number of divisions the level of the salt falls each day, the number of milliequivalents of chloride used by the patient is determined easily. Although such methods are crude they have proved accurate enough in practice to yield satisfactory results when the chloride balance of normal patients eating a full diet was determined.

TABLE 1.—*Water-Chloride Balance Sheet*[*]

From: 8:00 a. m. Feb. 5, 1950. To: 10:00 a. m. Feb. 6, 1950. Equals: 26 hr.

Intake			Output				
					Chloride, mEq.†		
Volume, Ml.	Fluid	Chloride, mEq.†	Volume, Ml.	Fluid	Per Liter	Total	pH
1,100	Oral	21	1,150	Urine	35	40	6.0
2,000	5% dextrose in water	...	1,000	Insensible	..	0	...
3,000	5% dextrose in normal saline	450‡	2,840	Gastric (aspirated)	74	210	6.5
			100	Estimated urine lost	35	4	6.0
			100	Formed stool	..	0§	...
6,100	Totals	471	5,190	Totals	..	254	...

Daily balance: Water: + 910 ml. Chloride: + 217 mEq. Cumulative chloride balance: + 196 mEq.

---

[*] At the beginning of the period on Feb. 5, 1950 the plasma bicarbonate measured 29 milliequivalents per liter, and the plasma chloride measured 98 milliequivalents per liter; the cumulative chloride balance was minus 21 milliequivalents.

[†] It has been found that the chloride data are most useful when expressed in milliequivalents because this facilitates the indirect estimation of sodium balance (100 milliequivalents of chloride equals 5.85 Gm. of chloride as sodium chloride or 3.46 Gm. of chlorine). However, if one prefers to express chloride as grams of sodium chloride or grams of chlorine, the bedside chloride test can be adjusted to provide results directly in any of these units of measure.[6a]

[‡] It has been found that 150 milliequivalents per liter is a satisfactory figure to employ in calculating the chloride in 0.9 per cent saline solution or similar solutions. If the amount of chloride in a solution is unknown, it may be determined directly by analysis using the bedside method.[6a]

[§] The amount of chloride in formed stool is so low that it can be ignored.

7. The time interval covered by the data in the balance sheet should be indicated at the top of the form as shown in table 1.

8. When possible, the fluid balance technician should weigh the patient daily. A portable bathroom scale calibrated in kilograms may be used. This can be carried right on the cart.

9. When all the items in the intake and output columns have been recorded, the columns are totaled and the balances calculated.

As shown in table 1, the daily balances of water and chloride are simply the differences between the intake and the output. The cumulative chloride balance is the sum of the daily chloride balances and represents the net gain or loss of chloride by the patient since the beginning of the study. In table 1, for example, the cumulative chloride balance on Feb. 6, 1950 is determined by adding the daily balance, plus 217, to the previous cumulative balance, minus 21 milliequivalents, which gives a result of plus 196 milliequivalents. This means that the total amount of chloride in the patient's body is 196 milliequivalents more than on the day the study was started.

When the detection of fluctuations in total body water is important, as in the management of acute renal shutdown, the cumulative water balance may be calculated. However, serial determination of body weight is a more reliable measure of fluctuations of total body water and therefore should be done whenever possible.

Cost and Accuracy of Water-Chloride Balance Studies.—It takes on the average about one-half hour per patient per day for the fluid balance technician to complete a water-chloride balance study. If the study is done by a regular technician working part time or full time on a hospital fluid balance service, the information can be supplied at an actual cost of about $1 to $2 per patient per day depending on the number of patients being studied. Water-chloride balance studies often more than pay for themselves by reducing the number of plasma electrolyte studies.

In the absence of excessive incontinence and continuous sweating, water-chloride balance studies obtained in the manner outlined are surprisingly accurate. We have followed the balances of patients for as long as a month or six weeks with a cumulative error in chloride balance of less than plus or minus 50 milliequivalents per week. When patients are getting a full oral intake, the accuracy is probably about plus or minus 100 milliequivalents per week. If the patients become grossly incontinent, the accuracy may be so low that the study becomes of little value. The accuracy of the chloride balance is due in part to the fact that in the type of patient studied errors made in the estimation of oral intake and insensible loss affect the calculation of chloride balance relatively little.

TABLE 2.—*Schedule for Estimating the Insensible and Sensible Loss of Water and Chloride*

	Water and Chloride Lost in 24 Hr.	
Amount of Sweating	Water, Ml.	Chloride, mEq.
No fever and no sweating	1,000	0
High fever or moderate sweating	1,500	35
Severe sweating (enough to necessitate change of pajamas)	2,000	70
Repeated severe sweating	Higher volumes of water and 70 mEq. of chloride for every 1,000 ml. in excess of the first 1,000 ml.	

MAINTAINING NORMAL WATER AND ELECTROLYTE BALANCE

For reasons to be discussed, it is far simpler to use water-chloride balance data as a basis for maintaining normal fluid balance than for correcting disturbances of fluid balance. Therefore it is important to start a balance study before trouble develops—i. e., on the day of operation for any patient who might be prone to have postoperative complications. To maintain normal water and electrolyte balance in a patient who is normal at the start of treatment, one plans to give the equivalent of the anticipated loss and at the same time to correct the previous day's imbalances.

Anticipating Losses.—Urinary Loss: An allowance of 1,500 ml. of water and 50 milliequivalents of chloride is made for urinary output. These amounts are chosen to provide the kidney with an opportunity to excrete waste products efficiently[15] and to help maintain electrolyte balance. Furthermore, such allowances enable the kidney to correct mistakes that may be made in anticipating other losses. For example, if 500 ml. too little water is allowed for insensible loss, the kidney can correct this error by decreasing the volume of urine from 1,500 to 1,000 ml. without impairing its efficiency.

These allowances for urinary output often have to be modified in the individual case. For example, one would not provide for a urinary output of 1,500 ml. in a case of anuria due to renal shutdown but in another case it might be necessary to allow for higher values than 50 milliequivalents of chloride if the kidneys could not conserve salt.

Insensible Loss: Water and chloride losses are anticipated on the basis of the schedule given in table 2.

Gastrointestinal Losses: By noting the volume of the gastrointestinal fluid lost during the preceding period, one can estimate roughly the volume that will be lost during the next period. For example, if the water-chloride balance sheet indicates that 1,000 ml. of gastric fluid containing 90 milliequivalents of chloride was aspirated during a 12 hour period, one can then estimate that roughly 2,000 ml. of gastric fluid and 180 milliequivalents of chloride will be lost during the succeeding 24-hour period. Such estimates are only tentative, and treatment that is based on them should be revised if the output changes during the period.

The anticipated losses of water and chloride are then totaled. This total represents approximately the amount that should be given in order to keep up with the losses and thereby maintain the status quo. However, it is not necessarily the amount that should actually be given; the previous day's imbalances also must be corrected.

Planning Treatment for the Next Period.—Amount of Water: The general principle consists of noting the volume of the anticipated loss and then planning to give this amount or more, depending on whether or not the patient has a water deficit at the beginning of the period. The presence or absence of a water deficit may usually be determined by noting the presence or absence of thirst and the volume of urine.[3a] It should be noted that the figure for daily water balance is not used as a basis for determining water dosage except in cases of renal shutdown.

Amount of Sodium Chloride: Except as will be noted below in the discussion of acid balance and of sodium balance, the sodium balance is assumed to parallel roughly the chloride balance. Therefore, most losses of chloride are replaced with sodium chloride.

Thirst and oliguria give early warning of disturbances of water balance. Because there are no comparable early signs of sodium chloride imbalance, the amount of sodium chloride in the body can fluctuate through a range of several hundred milliequavalents without its being apparent clinically, as has already been demonstrated. Since the cumulative chloride balance is a measure of changes in the total amount of sodium and chloride in the body and therefore of these very fluctuations, it is used to help determine how much sodium chloride should be given.

The general principle of planning the amount of sodium chloride to give consists of noting the anticipated loss and then planning to give this amount and more or less, depending on the cumulative chloride balance. If the cumulative chloride balance shows a retention of chloride relative to the amount present at the start of treatment when the patient was normal, then less than the anticipated loss of chloride should be given. If the cumulative chloride balance shows a loss, then more than the anticipated loss of chloride should be given. The following case illustrates how normal water and electrolyte balance may be maintained in a patient who is normal at the start of treatment.

A man aged 64 with a chronic duodenal ulcer and hypertension had a partial gastric resection on Feb. 2, 1950. A water-chloride balance study was started on the day of operation because the patient had a lowered cardiac reserve as a result of hypertensive heart disease. The patient was eating a full diet prior to operation and was therefore considered to be in normal balance with respect to water and electrolytes.

His postoperative course was essentially uneventful until February 5, the third postoperative day. About noon on that day he began to have abdominal distention and had to have repeated gastric aspirations. The water-chloride balance sheet for that period and the pertinent blood analyses are shown in table 1. The procedure for planning treatment for the next 24 hours, that is, from 10:00 a. m. February 6 to 10:00 a. m February 7, was as follows:

1. It was anticipated that 1,500 ml. of water and 50 milliequivalents of chloride would be lost in the urine.

2. Since sweating or fever was not anticipated, an allowance of 1,000 ml. of water and no chloride was made for insensible loss.

3. Since 2,840 ml. of fluid containing 210 milliequivalents of chloride was aspirated from the bowel during the preceding 26 hours, it was estimated that roughly 2,500 ml. of fluid containing approximately 185 milliequivalents of chloride would be aspirated during the next 24 hours.

4. Then, by addition, the total anticipated loss was determined to be 5,000 ml. of fluid and 235 milliequivalents of chloride.

5. Since there was absence of thirst on February 6, and since the urinary volume was 1,150 ml., for the preceding 26 hours, it was concluded that a water deficit did not exist. Therefore, a reasonable amount of fluid for the next 24 hours would be 5 liters, the anticipated loss. The amount of sodium chloride this fluid should contain was determined as follows:

6. Since the anticipated loss of chloride was 235 milliequivalents and since the patient had 196 milliequivalents more of chloride in his body than he had on the day of operation when he was presumed to have a normal amount, the administration of only 39 milliequivalents of chloride (235 minus 196) was indicated to restore the total chloride in the body to normal. This amounted to just 260 ml. of 5 per cent dextrose in normal saline solution. Practically, the amount was so small that sodium chloride was not given during the next period. The planned intake, therefore, consisted of 5 liters of dextrose in distilled water, without the addition of salt. It should be

---

[15] Gamble, J. L.: Chemical Anatomy, Physiology and Pathology of Extracellular Fluid: A Lecture Syllabus, ed. 5, Cambridge, Mass., Harvard University Press, 1947, charts 49 and 17-F.

remembered in this connection that the accumulation of chloride in the body is undesirable for any postoperative patient, especially if the cardiac reserve is lowered.[16]

The plan in the foregoing case was tentative and was subject to modification by changes in output during the period, such as might occur as a result of increased sweating or cessation of gastric aspiration.

Errors in Planning Treatment.—Because the volume of urine and the cumulative chloride balance are exceedingly sensitive indexes of water and electrolyte imbalance, early detection of errors in treatment is possible. In planning treatment from day to day one need not be overly concerned about the exact amount and type of fluid to give, as long as the previous day's imbalances are taken into account. In the case just presented, the patient probably would have had to retain 400 to 600 milliequivalents of chloride (that is, to have a cumulative chloride balance of plus 400 to plus 600 milliequivalents) before the excess could be detected clinically. Similarly, this patient would have had to lose up to 600 milliequivalents of chloride before a depletion would be evident clinically. Therefore, in planning the next day's salt intake it made little difference whether 1 liter of salt solution or no salt solution was given, just as long as the previous day's excess of plus 196 was being corrected by giving less than the anticipated output of 235 milliequivalents. By using this scheme of trying to correct the previous day's imbalances without stopping to ponder over the exact amount of salt and water to give, planning treatment from day to day is simplified and merely involves a glance at the balance sheet and a few rough mental calculations. At the same time this scheme insures that the patient's water and electrolyte balance will fluctuate much more closely around the norm than when the usual methods of planning treatment are employed. This last point is emphasized by the following:

> Two postoperative patients with new ileac stomas posed difficult therapeutic problems because of large losses of bowel fluid. Both patients were studied by water-chloride balance technics, but only in the second case were the data available to the physician treating the patients. Salt and water dosage in the first case was determined by the usual methods. During a seven day period the total body salt in the first case, as measured by the cumulative chloride balance, fluctuated through a range of 1,100 milliequivalents. Only at the extremes of fluctuation was the disturbance evident clinically. During a similar difficult period of management, the body salt in the second case fluctuated through a range of less than 300 milliequivalents.

Disturbances of Acid-Base Balance.—In planning treatment to maintain normal fluid and electrolyte balance, disturbances of acid-base balance often can be anticipated by noting the p_H of the fluids being lost from the bowel. For the purpose of this discussion, a disturbance of acid-base balance is defined as a deviation from normal in the concentration of serum bicarbonate. Only disturbances caused by loss of gastrointestinal fluid are considered here.

Disturbances of acid-base balance result when the intake and output of sodium do not parallel that of chloride. Since preliminary experience indicates that the amount of sodium in a specimen of fluid from the bowel can be estimated roughly from the amount of chloride in that specimen if the p_H is known also, one often can tell from the balance sheet alone whether or not large losses of fluid from the bowel will disturb the acid-base balance. This is done on the basis of the following tentative criteria, which are founded on limited clinical experience and the analysis of 50 specimens of bowel fluid for sodium, chloride and p_H.

If the p_H of the gastrointestinal fluid lost is less than 5, enough more chloride than sodium may be lost to cause an alkalosis; if the p_H is 5 or more but less than 7, no disturbance of acid-base balance is likely to occur; and if the p_H is 7 or more, acidosis may develop, although this has been comparatively rare in our experience to date. The following case illustrates the principles of determining whether large losses of fluid from the bowel will disturb the acid-base balance:

TABLE 3.—*Water-Chloride Balance Sheet in a Case in Which the Acid-Base Balance Was Disturbed**

Dec. 7, 1949: Cumulative Chloride Balance: — 101 mEq. From: 9:00 a. m. Dec. 7, 1949. To: 8:00 a. m. Dec. 8, 1949. Equals: 23 hr.

Intake			Output				
					Chloride, mEq.		
Volume, Ml.	Fluid	Chloride, mEq.	Volume, Ml.	Fluid	Per Liter	Total	p_H
2,540	Oral	60	1,200	Urine	40	48	7.0
1,000	5% dextrose in normal saline	150	1,000	Insensible	..	0	...
1,000	5% dextrose in water	0	3,100	Duodenal fistula	94	307	1.5
4,540	Totals	210	5,300	Totals	..	355	...

Date: Dec. 8, 1949. Daily balance: Water: — 760 ml. Chloride: — 145 mEq. Cumulative chloride balance: — 249 mEq.

* At the beginning of the period on Dec. 7, 1949 the plasma bicarbonate measured 29 milliequivalents per liter, and the plasma chloride measured 99 milliequivalents per liter. At the end of the period on Dec. 8, 1949 the plasma bicarbonate measured 35 milliequivalents per liter and the plasma chloride measured 89 milliequivalents per liter.

> A woman aged 40 who was being treated for a duodenal fistula had for several days received fluids only parenterally. On Dec. 7, 1949 the values for plasma electrolytes were in the normal range (table 3). On that day administration of water and a clear liquid diet was started by mouth. The water-chloride balance sheet for the first day on oral intake showed that the fluid from the duodenal fistula, which had previously been neutral, had now become extremely acid as indicated by a p_H of 1.5 (table 3). This change in p_H may have been due to the fact that the large oral intake stimulated gastric secretion and washed gastric juice down into the duodenum and out through the fistula. The p_H of 1.5 of this fluid suggested that more chloride than sodium was being lost. In this case, the sodium in the aspirated duodenal fluid was actually determined and proved to be 53 milliequivalents per liter as compared with a chloride concentration of 99 milliequivalents per liter. It was therefore reasonable to anticipate that an alkalosis might develop. This was confirmed by a rise in the plasma bicarbonate content to 35 milliequivalents per liter on Dec. 8, 1949 (table 3).

If a disturbance of acid-base balance is anticipated, the concentration of serum bicarbonate can easily be determined to settle the question.[17] To prevent and treat disturbances of acid-base balance, enough sodium and chloride should be given to insure spillage of these electrolytes in the urine. The kidney then can help correct the disturbance by excreting an excess of either sodium or chloride, depending on the need. The correction of disturbances of acid-base balance can be hastened by varying the proportion of sodium to chloride in the replacement fluid.[18]

---

[16] Coller, F. A.; Iob, V.; Vaughan, H. H.; Kalder, N. B., and Moyer, C. A.: Translocation of Fluid Produced by the Intravenous Administration of Isotonic Salt Solutions in Man Postoperatively, Ann. Surg. **122**: 663-677 (Oct.) 1945.

[17] Scribner, B. H.: The Bedside Determination of Bicarbonate in Serum, Proc. Staff Meet., Mayo Clin., to be published.

Sodium Balance Versus Chloride Balance.—One criticism of the proposed technic is that it is concerned with chloride balance when actually it is sodium balance that is important. This criticism may be answered as follows:

1. For the purposes of planning treatment it is assumed that sodium balance must roughly parallel chloride balance or gross disturbances of acid-base balance will occur; as we have already indicated, the proposed technic anticipates disturbances of acid-base balance. In some 300 patients no instance of electrolyte imbalance has resulted from treatment based on this assumption.

2. Although it is true that the amount of extracellular fluid in the body is determined largely by the sodium balance, chloride, like mannitol, is actually a better substance with which to measure the extracellular fluid, because chloride is more completely excluded from the cells than is sodium.[19]

RESTORING NORMAL WATER AND ELECTROLYTE BALANCE

Excluding disturbances of acid-base balance, which have already been considered, and disturbances of potassium and other intracellular ion balances, which will not be discussed in this paper, disturbances of water and electrolyte balance can be classified into four types[20]: (1) dehydration from deficit of water; (2) overhydration from excess of water; (3) dehydration from deficit of sodium chloride, and (4) overhydration from excess of sodium chloride. These disturbances are not seen often in pure form but are usually seen in combination. However, for the purpose of description they are considered separately.

Dehydration from Deficit of Water.—This condition is defined as a loss of water without an associated loss of electrolytes. The body fluids therefore become hypertonic. The condition is suggested clinically by the presence of oliguria and thirst. The deficit is treated by giving enough extra water to alleviate the thirst and to increase the volume of urine. Depletion of water should be treated with caution if the patient is also severely depleted of sodium chloride; the latter condition should be treated at the same time. It is important to exclude primary renal shutdown, such as is seen in lower nephron nephrosis, as a cause of oliguria before administration of extra water is begun. Primary renal shutdown sometimes may be excluded if there is no evident cause for it and if the history, symptoms and laboratory data (including a high urine specific gravity) support the diagnosis of depletion of water. In case of doubt, water should be given cautiously until the volume of urine increases or until it becomes apparent that the oliguria is of primary renal origin.

Overhydration from Excess of Water.—This condition is defined as a relative or absolute increase in the body water without an associated increase in body electrolyte. The body fluids therefore become hypotonic because of dilution. Water excess is relatively infrequent. It usually results from the excessive administration of water to a patient who is unable to eliminate the excess through the kidneys.[21] The severe form of water excess produces the syndrome of water intoxication.[22] Treatment consists of stopping the administration of water. This is about the only condition in which the anticipated loss of water should not be replaced. Treatment with hypertonic salt solution also has been advocated.[23]

Dehydration from Deficit of Sodium Chloride and Overhydration from Excess of Sodium Chloride.—These conditions are defined as a decrease or increase, respectively, in the total body sodium and chloride. There is usually a corresponding change in the total body water so that the concentration of sodium and chloride remain near normal and isotonicity is maintained. However, in severe depletion low levels of serum electrolyte are found. A deficit of sodium chloride is characterized clinically by mental apathy, decreased skin turgor, circulatory collapse, hemoconcentration and low concentrations of electrolyte in the plasma and urine. An excess of sodium chloride is suggested by edema.

The problem of diagnosing and treating depletion and excess of sodium chloride is often difficult because, as stated previously, the clinical and laboratory signs of sodium chloride imbalance are often misleading or insensitive. The cumulative chloride balance is helpful but only in an indirect way, because it measures only changes in the total amount of sodium and chloride in the body, rather than the absolute amount present. During treatment it is difficult to decide when the patient has attained a normal or desirable amount of sodium and chloride in his body. Of course, the easiest solution to this problem is to start with a patient who has normal water and electrolyte balance; hence the importance of starting a water-chloride balance study before trouble develops, as was done in the case depicted in table 1. In most cases, however, one is forced to begin treatment when sodium chloride balance is already greatly disturbed. A general approach to the problem of deciding when the amount of sodium and chloride in the body has been restored to a desirable level is outlined below.

1. At the start of treatment a rough preliminary estimate of the magnitude of the deficit or excess of sodium chloride is made on the basis of the history, physical examination and laboratory data. In illness of short duration comparison of the body weight at the time with the patient's normal body weight may be helpful in making this estimate. From this estimate a preliminary guess is made of the figure which represents the "desirable cumulative chloride balance." The desirable cumulative chloride balance is defined as the value for the cumulative chloride balance that exists when the total body sodium chloride is at a normal or desirable level. In other words, it is an estimate of the gain or loss of chloride that must be effected by treatment to restore the total body chloride of the patient to normal. For example, a patient is definitely but slightly edematous over the sacrum and ankles on the day a water-

---

[18] Lockwood, J. S., and Randall, H. T.: The Place of Electrolyte Studies in Surgical Patients, Bull. New York Acad. Med. **25:** 228-243 (April) 1949.

[19] Elkinton, J. R.: The Volume of Distribution of Mannitol as a Measure of the Volume of Extracellular Fluid, with a Study of the Mannitol Method, J. Clin. Investigation **26:** 1088-1097 (Nov.) 1947.

[20] Gastineau, C. F.: A Classification of the Disorders of Electrolyte Metabolism, Proc. Staff Meet., Mayo Clin. **25:** 630-634 (Nov. 8) 1950.

[21] Cooper, D. R.; Iob, V., and Coller, F. A.: Response to Parenteral Glucose of Normal Kidneys and of Kidneys of Postoperative Patients, Ann. Surg. **129:** 1-13 (Jan.) 1949.

[22] Helwig, F. C.; Schutz, C. B., and Kuhn, H. P.: Water Intoxication; Moribund Patient Cured by Administration of Hypertonic Salt Solution, J. A. M. A. **110:** 644-645 (Feb. 26) 1938.

[23] Gamble, J. L.: Chemical Anatomy, Physiology and Pathology of Extracellular Fluid: A Lecture Syllabus, ed. 5, Cambridge, Mass., Harvard University Press, 1947, chart 35-C. Peters, J. P.: Diagnostic Significance of Electrolyte Disturbances, Bull. New York Acad. Med. **25:** 749-763 (Dec.) 1949.

chloride balance study is begun. Because of the edema, one may conclude that the total amount of sodium and chloride in the body is well above normal. Since the cumulative chloride balance is always assumed to be zero at the start of a study, in this patient it will be minus several hundred milliequivalents when the amount of sodium and chloride in the body has been returned to normal. The preliminary estimate of the desirable cumulative chloride balance in such a patient might be minus 600 to minus 800 milliequivalents. (The desirable cumulative chloride balance would, of course, be zero in a patient who was normal at the start of this study.)

2. Treatment of the sodium chloride imbalance is begun by giving more or less than the anticipated loss of chloride, as the case may be. When giving more than the anticipated loss of chloride it is sometimes advisable to give more than the anticipated loss of water, because part of the retained salt will hold water with it. As treatment proceeds, an attempt is made to correlate changes in the signs and symptoms of electrolyte imbalance with changes in the total body salt as measured by the cumulative chloride balance. In this way the estimate of the desirable cumulative chloride balance can be made more accurate. For example, if a patient is being treated for a salt depletion and the obvious signs of the depletion (including poor skin turgor, hemoconcentration and low concentration of plasma electrolytes) disappear when the cumulative chloride balance reaches plus 600 milliequivalents, one can usually conclude that the desirable cumulative chloride balance is somewhere around plus 1,000 milliequivalents.

One way to help determine the desirable cumulative chloride balance is to correlate changes in the concentration of chloride in the urine with changes in the cumulative chloride balance. The concentration of chloride in the urine often falls to low levels (that is, below 35 milliequivalents per liter) with the development of only a slight deficit of sodium chloride and rises again only after the deficit has been alleviated.[3a, c] If the urinary chlorides rise from 10 to 70 milliequivalents per liter while the cumulative chloride balance rises from plus 1,100 to plus 1,200 milliequivalents, the desirable cumulative chloride balance is likely to be around plus 1,200 milliequivalents.

Data on urinary chlorides are by no means infallible, and conclusions drawn from them are valid only in the absence of contradictory evidence based on the cumulative chloride balance and over-all clinical evaluation of the electrolyte status. We have found, as have Randall, Habif and Lockwood,[24] that certain severely ill patients can have a high excretion of urinary chloride in the presence of severe salt depletion and vice versa. However, this does not mean that treatment based on the test for urinary chloride is dangerous and misleading. When interpreted as outlined above, limitations of the test are obviated and it has proved to be of great value in helping to determine the desirable cumulative chloride balance. It is hoped that on the basis of further experience with this new clinical tool, the cumulative chloride balance, new principles can be evolved that will simplify the problem of determining the desirable cumulative chloride balance in the individual case.

The fact that a value for the desirable cumulative chloride balance has been established does not mean that it should not be constantly reviewed. The main reason for review is to check on errors that might be made in determining the chloride balance and to detect abnormal accumulations of fluid. For example, suppose that peritonitis develops in a patient with a desirable cumulative chloride balance of plus 400 milliequivalents and that fluid accumulates in his peritoneal cavity. This fluid is unavailable to the body and must be replaced just as though it had been lost from the bowel. Yet this loss does not show on the balance sheet. The net result is that the estimate of the patient's desirable cumulative chloride balance will have to be increased by several hundred units, say, to plus 700 milliequivalents. The exact figure will have to be determined.

The above discussion serves to emphasize again a basic point in parenteral fluid therapy, namely, that laboratory tests are no substitute for clinical judgment. Water-chloride balance data refine and improve clinical judgment; they do not replace it.

TYPES OF CASES IN WHICH WATER-CHLORIDE BALANCE STUDIES HAVE PROVED OF PARTICULAR VALUE

A man aged 83 had postoperative gastric retention. In spite of seemingly large amounts of salt and water given parenterally, he became salt depleted and alkalotic. Water-chloride balance studies were started; these indicated that the patient should receive 8 liters of fluid and 600 milliequivalents of chloride in a 24-hour period. In spite of a lowered cardiac reserve, this amount was given slowly and carefully. The patient benefited greatly and did not show evidence of congestive heart failure. After three more days of treatment, his gastric retention was relieved and he recovered.

Giving a man 83 years of age 8 liters of fluid in one day would have seemed rather drastic had it not been for the water-chloride balance studies, which clearly indicated the need for this vigorous treatment.

A boy 8 months of age underwent ureterosigmoidostomy for exstrophy of the bladder. Thirty-six hours after operation he had generalized convulsions without apparent cause, and his condition became critical. Water-chloride balance data, which had not been available to the physician in charge, revealed that although the volume of urine had been satisfactory it had not been large enough to keep up with the rate of infusion of dextrose solution being given to maintain an adequate urinary volume. The data showed a retention of water without a retention of salt; in other words, overhydration from excess of water was causing water intoxication. Two per cent sodium chloride in 10 per cent solution of dextrose stopped the convulsions almost immediately, and the patient recovered uneventfully.

Water-chloride balance studies may have been lifesaving in this case, because the diagnosis of water intoxication would have been difficult to make without them, as evidenced by the fact that it was not made until they were available. Similarly water-chloride balance studies by demonstrating early a retention of water in the presence of oliguria have facilitated the early diagnosis of impending primary renal shutdown; such studies also facilitate better management of this difficult problem.

A boy aged 8 years had aspiration pneumonia after an emergency operation for obstruction of the bowel. Four days after operation the physician in charge consulted the fluid balance service because of a plasma bicarbonate level of 41 milliequivalents per liter, which was believed related to the continued aspiration of gastric juice. Water-chloride balance data revealed that the gastric aspirate had been neutral instead of acid and therefore could not explain the "alkalosis." The data also revealed that the high bicarbonate level with hypochloremia was due to renal excretion of an acid urine high in chloride.

---

[24] Randall, H. T.; Habif, D. V., and Lockwood, J. S.: Sodium Deficiency in Surgical Patients and the Failure of Urine Chloride as a Guide to Parenteral Therapy, Surgery 28: 182-207 (Aug.) 1950.

When these observations were correlated with the pneumonia, the correct diagnosis of respiratory acidosis was established. It was confirmed by a plasma p_H determination of 7.2.

This diagnosis was of more than academic interest because it prevented the giving of ammonium chloride to lower the serum bicarbonate level, which would have made the acidosis worse.

SUMMARY

The importance of maintaining normal water and electrolyte balance and the inadequacy of present methods of accomplishing this in difficult conditions suggest a need for more exact methods of planning treatment for patients with complicated problems of fluid balance.

The goal of parenteral salt and water therapy is the maintenance of total body salt and water at a desirable level. Since water-chloride balance studies accurately measure changes in this level, they provide a reasonable basis on which to plan treatment. The clinical determination of water-chloride balance may now be accomplished with acceptable accuracy and at low cost by a new technic for the accurate bedside determination of chloride. Such water-chloride balance studies have been found of value in planning water and electrolyte dosage for several reasons:

1. They inexpensively provide a factual basis on which to plan treatment based on the individual need rather than on tests, rules or formulas. At the same time, they provide early warning of errors in treatment. Better care is therefore given at lower cost.

2. Water-chloride balance studies encourage physicians to think in terms of the total amount of sodium and chloride in the body as well as in terms of the concentration of these substances in the plasma.

3. Water-chloride balance studies make the management of problems of fluid balance more interesting and instructive and provide an excellent basis for teaching the principles of water and electrolyte metabolism.

4. Because nurses soon realize that the patient's welfare often depends on the reliability of their charting, the nursing staff is stimulated to be more accurate and precise in their recording of data on intake and output. The reliability and therefore the usefulness of these data are thereby increased.

ABSTRACT OF DISCUSSION

Dr. Victor Richards, San Francisco: Some eight years ago Dr. Scribner and I first became interested in this problem of fluid balance. At that time, the only methods available for deciding on requisite fluid and electrolytes for patients were chemical analyses of the blood. The ions most commonly considered are the sodium, potassium, chloride and bicarbonate. It is extremely difficult—and impossible in the ordinary hospital—to get any of these studies done. Hence, this approach to determination of requisite fluid and electrolytes on the basis of the cumulative chloride balance is of tremendous value. The only possible source of error is in those conditions in which sodium and chloride are excreted independently. However, I do not believe this objection obtains if one will follow these patients daily and make the cumulative type of study which Dr. Scribner has described. Similarly, one need not be concerned about discrepancies of sodium and chloride if the p_H of the material which is excreted is followed. That will enable the physician to decide whether the person has become acidotic or alkalotic, and that in turn will enable him to predict body sodiums accurately on the basis of chloride determinations. This is an extremely simple and effective measure for deciding the body needs of water, sodium and chloride. Dr. Scribner has not commented about potassium, and that is one source of difficulty which might arise in predicting body fluids and salts solely on the basis of the chloride technic. About 50 milliequivalents of potassium is lost daily, and in these patients this method of calculation is perfectly satisfactory if the potassium loss is added in addition with about 50 milliequivalents a day, plus the amount that is lost in these body electrolytes. This, then, is an extremely simple and inexpensive and practical way of settling the fluid and electrolyte needs of patients on an accurate basis without the necessity of detailed analysis of sodium, chloride and bicarbonate in the blood. It will be a great help in the handling of surgical problems of fluid and water balance.

Dr. Dwight L. Wilbur, San Francisco: Drs. Scribner, Power and Rynearson are to be congratulated on bringing to the bedside a simple, effective way of determining the needs for water and chlorides of the patient who, postoperatively or because of cardiac or renal disease, is apt to develop deficiencies in his electrolyte and fluid balance. It is surprising that so many patients have done so well after the parenteral administration of fluids. The amount and the chemical content of fluids so administered often have been determined largely by guessing the needs of the patient. Frequently a patient has been in serious imbalance which has not become apparent until the occurrence of edema, cardiac or renal embarrassment, or death. By the authors' methods fairly accurate information can be obtained concerning the chloride and fluid balance of the patient, and therefore his daily needs may be estimated. Most important, however, imbalance can be detected and corrected before serious complications occur. This method is not only clinically effective but useful in training the physician and surgeon at the bedside to think in terms of the total metabolism of salt and water and not merely in terms of the concentration of chloride in the plasma or the amount of urine excreted. Finally, this simple method has the merit of prevention at small cost of the complications and diseases that are costly both economically and in terms of morbidity and mortality.

Dr. Belding H. Scribner, Rochester, Minn.: We have attempted to demonstrate that the determination of chloride balance is now available to everyone and can be accomplished inexpensively and without special facilities. We do not imply that because the data are readily available they are easy to interpret when first encountered. However, most of the trouble in learning to use these balance data is due to lack of familiarity with the concepts involved. For example, physicians are accustomed to thinking of a patient's sodium chloride requirements in terms of the concentration of electrolytes in the serum. Balance data require that these requirements be thought of in terms of the total amount of sodium chloride in the body. It is desirable that this be done, and with a little practice one can soon learn to use water-chloride balance data effectively to determine the daily salt and water requirements of patients. These water-chloride balance studies make the management of problems of fluid balance more interesting and instructive because they tend to explain some of the basic principles of fluid balance in terms of the patient who is being treated. If a physician is interested in learning about renal regulation of acid-base balance, our technics enable him to observe the regulation as it operates in his patients. Suppose a balance study is being conducted on a patient in whom gastric retention develops and who requires gastric aspiration. First, the balance sheet will indicate whether the gastric aspirate is extremely acid, suggesting that more chloride than sodium is being lost and that an alkalosis may develop. If the alkalosis does develop the physician can observe a negative chloride balance, a lowering of the output of chloride in the urine and, most important, a pronounced shift in the urinary p_H to the alkaline side, indicating that the kidney is attempting to correct the situation by excreting a urine which is high in sodium and low in chloride. By being able to follow such events in his own patients a physician will soon discover that these water-chloride balance studies continually dramatize the principles of fluid balance and thereby encourage him to learn more about them.

ACCIDENTS, CHILDHOOD'S GREATEST PHYSICAL THREAT, ARE PREVENTABLE

HARRY F. DIETRICH, M D
Beverly Hills, Calif.

After 1900, patient, painstaking and often brilliant work in the fields of public health and preventive medicine resulted in dramatic reductions in the morbidity and mortality of most infectious diseases; since 1936 the success of antibiotic therapy and chemotherapy in the most fearsome infections has resulted in even more miraculous reductions in mortality rates. Yet the very triumph of modern antibiotic and chemotherapeutic medicine has given new statistical significance to an old problem. Over 100 years ago Condie[1] wrote, "Burns and scalds are among the most frequent accidents that occur. . . . The carelessness of parents and servants, the natural temerity and incautiousness of children . . . render these accidents of such frequent occurrence. . . ." The recent precipitous decline in death rates from disease is in shocking contrast to the essentially unchanged death rate from accidents.

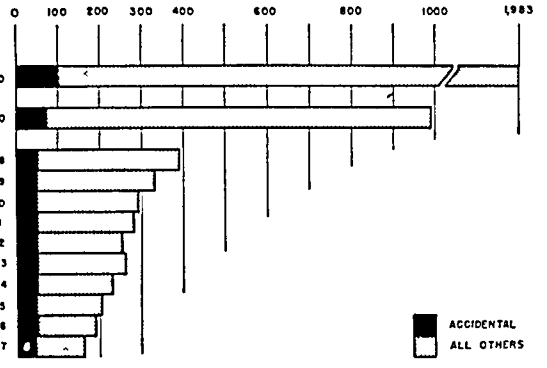


Fig 1 —Chart showing the decrease in total death rates due to public health and preventive medicine and modern therapy The rate constancy and growing importance of accidental death is apparent (The accident rate of 1900 was unobtainable.)

Figure 1 tabulates the diminishing death rates from disease and the too constant death rate for accidents in preschool children of one to four years of age.

Accidents now kill more children than any single disease and actually account for one third as many deaths as all diseases combined. In figure 2 the number of deaths from accidents is oriented in the five commonest causes of death for the one to four year age group.[2] That two different groups of accidents rank in the first five causes of death is worthy of serious thought and positive action. Figure 3 requires no comment; it illustrates the relative frequency of accidental death compared to the next commonest cause or causes of death for the indicated age groups. It forces the question, however, "Do we expend our money, efforts and emotions combating the most important threats to our children, or is most of our concern with dangers of secondary importance?" Though not to be belittled, the problems of poliomyelitis, heart disease, cancer and tuberculosis in children are dwarfed by the physical and emotional devastation brought by juvenile accidents. The leading lethal role of accidents has somehow escaped proper emphasis, but it cannot be challenged; over a year ago the magnitude of the problem was aptly indicated in The Journal of the American Medical Association.[3]

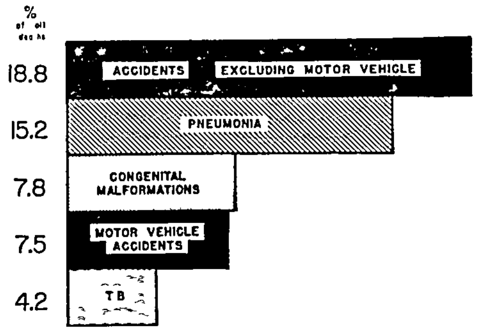


Fig 2.—Leading causes of death of children aged one to four years in the United States in 1947. In this age group accidents not only rank as the leading cause of death but occupy two of the first five positions as causes of death

In one year over 12,500 children were killed by accidents.[4] How many children were permanently crippled is completely unknown. Roberts and Gordon,[5] in studying home accidents (all ages) in Massachusetts, found that for every person killed 150 were injured and four received permanent disability. Temporary application of this estimate (for lack of another figure) to the juvenile accident field would suggest that approximately 50,000 children a year were permanently injured in the United States.

This tremendous morbidity and mortality has excited only desultory thought and uncoordinated action by the medical profession. Wheatley[6] has indicated that the United States Children's Bureau, the National Safety Council, the Academy of Pediatrics and the Metropolitan Life Insurance Company are aware of the problem; the last named has perhaps been most active in its attack. In industry, aviation and traffice management much has been written about accidents and their

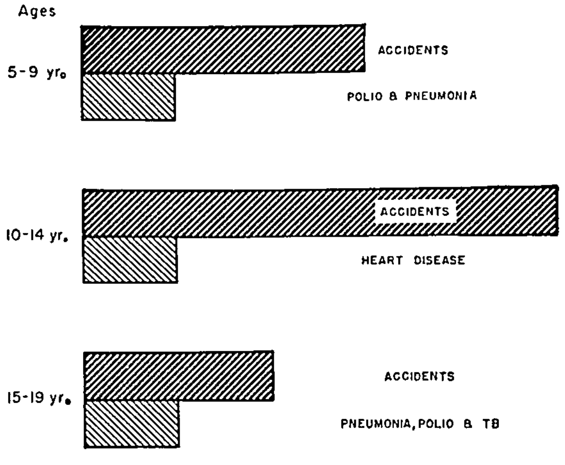


Fig 3 —Chart showing the ratio of deaths due to accidents and the next commonest cause or causes for the indicated age groups

---

Read before the Section on Pediatrics at the Ninety Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950

From the Childrens' Hospital, the Department of Pediatrics, University of Southern California Medical School, Los Angeles and the Beverly Hills Clinic, Beverly Hills

[1] Condie, D F. A Practical Treatise on the Diseases of Children, Philadelphia, Lea & Blanchard, 1844, p 642

[2] Summary of Vital Statistics, 1947, Federal Security Agency, United States Public Health Service, National Office of Vital Statistics, vol 30, no 1, Sept 15, 1949

[3] Our Greatest Child Health Problem, Current Comment, J. A M. A. **139**: 588 (Feb 26) 1949

[4] Child Accident Fact Sheet, Chicago, National Safety Council, 1949.

[5] Roberts, H L, and Gordon, J E Home Accidents in Massachusetts, New England J Med **241**: 435 441 (Sept 22) 1949

[6] Wheatley, G M Child Accident Reduction· A Challenge to the Pediatrician, Editorial, Pediatrics **2**: 367-368 (Sept) 1948

economic significance; few investigators have attempted to establish basic concepts in the field of accident prevention. Roberts and Gordon have intimated that there is an epidemiology of accidents. Over 10 years ago Godfrey[7] urged that accident prevention be considered a public health problem and stressed the importance of home accidents. Armstrong and Cole[8] have been particularly interested in studying home accidents among certain insured groups. Manning[9] briefly mentioned accident prevention in her prize-winning essay on preventive medicine. The Bakwins[10] reviewed the psychological implications in the accident-prone person, and Ackerman and Chidester[11] analyzed an aggravated case in a child. In England special commissions have been activated to survey the problem, and in one town studied 9 per cent of the children under 10 years of age received hospital treatment for accidents during one year.[12] A few specialists have become concerned with the accidental tragedies in their patients. Jeancon[13] is mentioned because that concern has expanded her activity from ophthalmology to the general field of accident prevention in children. Graves[14] summarized the importance of accidents in children and pointed out the household areas where particular care should be exercised. Separately he emphasized the need for accident prevention in pediatric nursing.[15] Recently Esther Clark[16] dramatically pointed out the importance of accidents as a cause of childhood death and emphasized the "life years" and "working years" lost by juvenile accidental death. Spock indirectly indicated the close relation between accident prevention and general child-parent relations.[17] Each author writes of protecting the child from poisons, pots and pools, but no one has formulated a general theory of accident prevention in childhood.

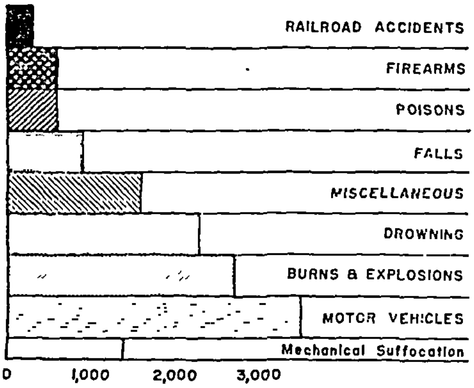


Fig. 4.—Chart showing the number of deaths from the various types of common accidents in the United States in 1947 involving children (14,000) under 15 years of age.

Here is a problem to challenge every member of the medical profession, and it must do so individually. The problem of accident prevention in childhood is unique. No endowed foundation, no research laboratory and no inspired investigator is going to develop a vaccine, serum, antibiotic, endocrine extract or operation that will prevent accidents. Though interest, thought and statistical research can be stimulated at the community level, the ultimate mediators of any accident prevention program in childhood are the parents. They must be reached individually or in community groups by the physician, who must offer a reasonable theoretical solution. Even though a physician may not choose to work on the problem at the community level, he cannot escape his responsibility of functioning effectively in the doctor-patient relation. No specialty can validly disclaim this responsibility.

In the discussion to follow it must be emphasized that "accidents" refers only to lethal, or physically, psychologically or economically crippling types of injury. Burning, drowning, poisoning, crushing, shooting and mangling include most of the serious accidents. Bowden[18] has most recently shown that "smothering" belongs in the same diagnostic wastebasket as "thymic death"; it should, in all but the rarest of instances, be deleted from the figures on accidental deaths. The earlier mention of "over 12,500 annual accidental deaths" has already been reduced by 1,400 alleged instances of suffocation. The relative frequency of the various fatal accidents is shown in figure 4.

Just as the normal child will suffer certain not overwhelming frustrations without permanent emotional disfigurement, so in the process of ambulation, exploration and education must he expect certain minor injuries. Split lips, polychrome lumps, chipped deciduous teeth, blistered fingers, simple fractures and gory but not gruesome lacerations must be accepted as normal wear and tear; properly handled by the physician and the parents, they can be of positive educational value.

THEORY OF ACCIDENTAL PREVENTION

How can the physician advise on accident prevention? In adults accident prevention must be engrafted like ritualist manners or military courtesy; more rarely it can be taught as an intellectual discipline. A theory of accident prevention which embraces a changing reciprocal relation between protection and education seems needed in work with children; the relative roles of these two components related to age is suggested in figure 5. Briefly stated, pediatric accident prevention begins with 100 per cent protection at birth; this protection must be absolute and must be maintained through most of the first year of life. The nonambulatory infant under one year of age, who is not adroit at dodging, is completely at the mercy of its custodians. If he is burned, crushed, drowned, poisoned or mechanically mangled it is directly the fault of the persons responsible for his care; the

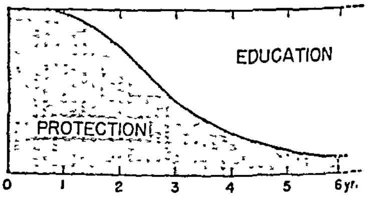


Fig. 5.—Diagrammatic depiction of the theory of accident prevention showing the changing and reciprocal relation of protection and education related to age.

---

[7] Godfrey, E. S., Jr.: The Role of the Health Departments in the Prevention of Accidents, Am. J. Pub. Health **27**: 151-155 (Feb.) 1937.

[8] Armstrong, D. B., and Cole, W. G.: Persistent Hazards in the Home Accident Pattern, Am. J. Pub. Health **39**: 1434-1438 (Nov.) 1949.

[9] Manning, M. D.: Preventive Medicine, New England J. Med. **240**: 1047-1053 (June 30) 1949.

[10] Bakwin, R. M., and Bakwin, H.: Accident Proneness, J. Pediat. **32**: 749-752 (June) 1948.

[11] Ackerman, N. W., and Chidester, L.: "Accidental" Self-Injury in Children, Arch. Pediat. **53**: 711-721 (Nov.) 1936.

[12] Castle, O. M.: Accidents in the Home, Lancet **1**: 315-319 (Feb. 18) 1950.

[13] Jeancon, E. C.: Accidental Injuries in Children, Ann. West. Med. & Surg. **3**: 225-226 (June) 1949.

[14] Graves, G. W.: The Accident Problem in Infancy and Childhood, New York Med. **4**: 23-25 (April 20) 1948.

[15] Graves, G. W.: Accident Prevention in Pediatric Nursing, Am. J. Nursing **49**: 28-31 (Jan.) 1949.

[16] Clark, E. B.: Leading Causes of Childhood Death, California Med. **73**: 22-26 (July) 1950.

[17] Spock, B.: The Common Sense Book of Baby and Child Care, Duell, Sloan & Pearce, Inc., New York, 1946, pp. 208-213.

[18] Bowden, K.: Sudden Death or Alleged Accidental Suffocation, M. J. Australia **1**: 65-72 (Jan. 21) 1950.

responsibility of the physician to instruct parents is obvious. Accident prevention in the young infant is therefore remarkably simple. However, if such absolute protection were maintained for a relatively few years the child would be unusually vulnerable to accident.

As indicated in the graphic representation of the theory of accident prevention in children, the early introduction of a rapidly increasing component of education is essential. While maintaining protection against serious accidents, parents should expose children who have reached the age of one year to the educational value of minor painful experiences. This is the beginning of an important and difficult period, for by 6 or 7 years of age the child should need protection only from previously unexperienced or incomprehensible perils. He will still need frequent reminders, but protection in general is infeasible because his activities move him physically from the sphere of parental influence. Education accompanies the child; protection remains at home. It is obvious then that the 1 to 5 year age period is the critical one. Here the pattern for future safe conduct (as most other behavior patterns) is set.

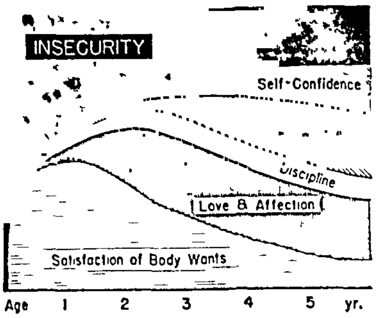


Fig. 6.—Illustration of the development of "sense of security," with the relative importance of the several components related to age.

It is impossible didactically to present rules for each child at each age. The interests, imagination and opportunities of the individual youngster are too varied. However, certain major catastrophies threaten every child. One may consider as examples some of the main threats to a 20 month old infant and how the parents might combine protection and prophylactic education. In the prevention of serious burns the parents should never allow the infant to be near the stove (in use or not), an open flame or potential electrical hazards. Even casual handling of matches or lighters should not be permitted, for the infant cannot appreciate their inflammable potentialities. This is protection. The heat of any commonly hot article, like a coffee pot, should be repeatedly demonstrated by lightly touching the child's hands to it. With proper warnings, the contacting of a lighted cigaret should be encouraged to clarify and emphasize the "hot" concept. This is education. With the child's climbing abilities well in mind, the parents should place poisons and caustics out of reach; a bottle of vinegar or a jar of hot mustard left where discovery is inevitable may well provide the first lesson that not everything in bottles is pleasantly imbibable. No young infant should be allowed near machinery with exposed moving parts (wringers, sewing machines, farm implements, lawn mowers, electric fans), but a finger nail torn or bloodied in the exploration of a manual egg beater is a small price to pay for initiation of respect for the moving parts of machinery.

The first educational step in the prevention of drowning presents a peculiarly difficult problem. For over a year and a half parents have, by every action, indicated to the infant only the virtues of water. They have encouraged his drinking of it, they have made a fetish of using it on his face, hands and body, they have laughingly and rightly encouraged his playing with it and have highly praised him when he has deposited his precious excreta in it. Now they are faced with the apparent paradox of convincing him that it, in large amounts, is dangerous and bad. The aim should be to teach him respect for, rather than fear of, deep water. If, instead of spending the daily bath time fallaciously proving to the infant that he is unsinkable ("look at baby swim"), they occasionally let him discover that he cannot stay afloat and that water in the air passages is not comfortable, they could, without instilling fear, encourage respect for deep water.

It must be obvious that for any one child the prevention of a particular type of accident will employ varying protective and educational pressures at different ages. The presentation here of the problem of serious falls in the male is not all-inclusive. During the first year of life the prevention is protection—the infant should neither be dropped nor allowed to drop. Protection must be 100 per cent. As soon as the infant becomes ambulant the problem is more complicated. He must be protected against serious falls and at the same time must gain a respect for the potentiality of falling. He must not be allowed to fall from dangerous heights, nor on dangerous surfaces, nor with dangerous objects in his hands. Thus upstairs screens must be nailed; pools, ditches and ponds must be fenced or effectively prohibited, and cellar doors must be locked. The child should be permitted to fall out of chairs (education) but not with potentially dangerous implements in his hands (protection). He must gradually be taught in minor, painful (but not lethal or crippling) ways the concept of gravity and falling. When the child begins to climb, his actions should be neither forbidden nor dramatized. He must be taught to expect falls and therefore to think about where he is going to fall. Minor falls should not be poulticed with major emotional or gustatory awards. He should be instructed to keep the area where he might land in a fall clear of garden tools, wagons and other secondarily injurious objects. He should be taught that climbing is a skill to be practiced, not an accomplishment to be socially exploited. The interested boy eagerly accepts instruction in how to test footholds—on branches, fences and rocks. He gladly learns how to pick the safest landing areas and body attitudes in case a fall is unavoidable. The natural mechanistic interests of the 7 to 9 year old boy lend themselves to an appreciative acceptance of the care, use and dangers of ropes, pulleys and ladders. Finally, after many intermediary experiences, the young man arrives at the age of 21 years. Whether he is climbing power poles for a living or clambering up mountains for fun, he will unconsciously employ an accumulated body of knowledge and skill for accident prevention; but in dangerous situations he still will avail himself of the protection (enforced by company order or elected by himself) of a safety belt or pitons and a rope.

I have suggested that the reciprocal relation of protection and education related to a child's age constitute a workable theory of accident prevention. This implies that the theory is applicable by the parents. It is. The tools needed are forethought, time and discipline. The forethought must be devoted to anticipation of the child's interests and activities. "He hasn't turned over yet" is an attitudinal invitation to disaster. "Your garden job this week" is avidly read by many parents who still in practice apparently subscribe to the "a child is a child" philosophy; they fail to anticipate constantly changing interests and activities. Here the physician can supply valuable advice and can probably aid by suggesting graded educational situations. Time might seem to be a limiting factor, but if physicians would allay parental worry about nonessential and nonremediable worries, mothers and fathers would have the time necessary to insure the safety of their children.

Without being facetious or flippant, I maintain that, if all the time wasted by parents on fruitless worrying about poliomyelitis, nineteenth century worrying about the size, shape and color of bowel movements, harmful worrying about appetites, puerile worrying about temporary cosmetic blemishes, guilty worrying about juvenile masturbation and competitive worrying about their children's ounces and inches—if all this wasted emotional effort and time were employed in thinking about accident prevention, parents would have more living children. Again the physician's role is clear and unavoidable. He must be careful lest he magnify, by his attitude, his treatment or his charges, the parents' worries about less important problems. Parents must be shown that pimples, poliomyelitis and pounds are relatively unimportant problems. They must be shown that accidents present a greater hazard than the threats our too thoroughly propagandized society ordinarily fears for its children. Accidents are brutal and basic. Then, too, parents must be convinced that the prevention of serious accidents is possible by their own efforts. But forethought and time are not enough.

The third indispensable tool for the application of the theory of accident prevention in children is discipline. Misinterpretation of modern psychological and psychoanalytical thought has robbed too many children of the emotional security and physical protection that is afforded by mild, consistent, understanding and logical discipline. There is perhaps no child so basically insecure as the youngster who knows that his parents will not control his accidental, experimental or vindictive threats. There is perhaps no young adult so emotionally vulnerable to the pressures of a frustrating civilization as the young adult who has not had to cope with some childhood frustrations. In general, mild discipline, introduced in the last few months of the first year, must be reinforced and expanded in scope during the second year to protect the child against all the major threats to his safety that cannot be removed from his reach. During the second year active discipline should probably have no other objective. To be safe, the 20 month old infant must be trained (disciplined) to stay away from the kitchen stove, all machinery, electrical outlets and connections, fire-making contrivances and the streets. Throughout childhood there must remain a leash (not lash) of discipline to serve where reason cannot—and from this leash will ultimately develop the halter of self discipline.

RELATION OF ACCIDENT PREVENTION TO EMOTIONAL SECURITY

If it had none but its obvious value—the prevention of death and crippling in children—accident prevention would be worthy of the attention of all physicians. However, accident prevention is not an isolated facet of child care. In its dynamic conception it is an integral part of the emotional development of children. It is beyond the province of this discussion to attempt to detail the development of a sense of security in childhood; for brevity's sake figure 6 is offered as a graphic representation of the relative importance of the various factors involved at different age levels. If the concept is accepted that the desire for "lack of pain" is one of the basic body wants, then the contribution of an accident prevention program to each of the components of a sense of security is obvious. A child's assurance of parental love and affection is immeasurably enhanced by his knowledge that his parents will not permit him to perform any truly injurious act. His need for discipline is fruitfully satisfied. His sense of physical security is augmented. An imaginative accident prevention program adds tremendous increments to both self confidence and knowledge. In brief, there is certainly no other phase of the parent-child relation which so broadly and literally enhances a child's sense of security.

THE PHYSICIAN'S ROLE

A medical problem of tremendous importance to the health and life of children has been defined. A practical theory for the prevention of accidents has been presented, and the tools necessary for the application of the theory have been enumerated. The responsibility for the distribution of this information to parents rests primarily on the medical profession. We physicians will be most remiss in our obligations to insure the health of children if we do not initiate and continually activate programs of accident prevention. Such activity by the medical profession should logically proceed at several levels:

1. The patients of individual physicians should be appraised of, and advised on, the problem of accident prevention in children. The frequency of accidental death and crippling should be placed in its proper perspective, which implies sound education of the laity on other medical problems. Press [19] suggested that, when, at the time for the child's immunization, a mother expresses the wish that she could "take the baby's shot for him," she should be reminded that only she can "immunize" him against the greater threat and pain of serious accident.

2. Community resources should be recruited to adopt accident prevention programs as primarily important ones. As was editorially stated in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION [20] ". . . as professional men and citizens they (physicians) are free to take the initiative. Individually, and in civic or municipally sponsored groups, members of the medical profession have a compelling responsibility. Physicians can play an effective, even dramatic, role in the prevention of accidents. . . ." Armstrong and Cole [21] have provided a workable outline for the organization of community accident prevention. These same resources should be informed of the truly vital importance of obtaining accurate figures on crippling due to accidents. The economic effects of childhood accidents provide another field for fruitful survey.

3. Additional attempts must be made to stimulate, at national levels, an active appreciation of the problem of accidental death and crippling in children and an awareness that the problem is not insoluble.

It should further be pointed out that parents who are thoughtful about the possibility of accidents to their children will unconsciously be thoughtful about themselves, whether they are in an oil refinery, a mine, a kitchen or an automobile or on a farm. This intensification of adult awareness of accident hazard through child safety programs should be worthy of nurturing

---

19. Press, E.: The Accident Problem, J. A. M. A. **135:** 824-827 (Nov. 29) 1947.

20. Accidents, Editorial, J. A. M. A. **142:** 732 (March 11) 1950.

21. Armstrong, D. B., and Cole, W. G.: Can Child Accidents Be Prevented in Your Community? Am. J. Pub. Health **39:** 585-593 (May) 1949.

by the American Red Cross, the Blue Cross and similar hospital plans, the National Safety Council, all national industrial groups and insurance companies. The intimate relation between accident prevention programs in children and the development of a sense of security should be brought to the attention of the various mental hygiene movements, juvenile parole associations and similarly motivated national groups. In all of this the physician must be the activator. Here is an opportunity for the physician who has no research grant, no medical school teaching affiliation, no laboratory training and no investigative experience or opportunity to aid tremendously child health at the family, community or national level.

SUMMARY

Accidents constitute the greatest single threat to children's lives and physical health. How many children are permanently crippled by accidents is not, but should be, known. A theory of accident prevention embracing a changing reciprocal relation between protection and education is suggested. The practical application of such a theory requires forethought, time and discipline. A properly applied program of accident prevention contributes to each component of a child's sense of security. While the ultimate mediation of an accident prevention program in children rests with the parents, the immediate responsibility falls on, and must be accepted by, the medical profession.

416 North Bedford Drive.

Clinical Notes, Suggestions and New Instruments

AGRANULOCYTOSIS DUE TO GANTRISIN®

Report of a Case with Recovery

E. A. HAUNZ, M D.
J. D. CARDY, M D.
and
C. M. GRAHAM, M D
Grand Forks, N D

Gantrisin,® previously designated NU-445, is 3,4-dimethyl-5-sulfanilamide isoxazole. Since early in 1946 this sulfonamide has had rather extensive experimental and clinical trial,[1] and all observers repeatedly emphasized the apparent low toxicity of the drug. Though infrequent, the usual toxic phenomena incident to the use of other sulfonamide compounds have been noted, including dermatitis,[2] anorexia,[3] nausea, vomiting,[4] headache,[5] fever,[2a, h] vertigo,[2f, g] crystalluria[6] and hematuria[7] A review of all available published clinical reports to date discloses only eight instances of leukopenia[2f, g] Neutropenia of moderate degree was present in two of these eight cases. In neither of the two cases were neutrophils depressed below 30 per cent[8] However, in several clinical reports specific mention of leukocyte counts was not made.

The present case of true agranulocytosis due to gantrisin® is reported because: (1) to our knowledge this is the first instance of total disappearance of granulocytes following the use of this drug, and (2) it is hoped that this report will serve to discourage indiscriminate use of the drug.

REPORT OF CASE

History.—A woman aged 47 was examined by one of us (C. M. G.) on Jan 4, 1950. Her chief complaints were slight frontal headache, running nose, nonproductive cough, myalgia and general malaise of five days' duration. Inquiry into the past history was noncontributory except for a "cold" one month previously, for which the patient had not consulted a physician.

Physical Examination.—The patient was well nourished and did not appear acutely ill. The temperature was 102.4 F., the pulse rate 100 per minute and the respiratory rate 18 per minute The scleras, nasal mucosa and pharynx were moderately injected. The neck, heart, lungs, abdomen, pelvis, rectum, extremities and central nervous system were entirely normal.

Treatment.—The diagnosis at this time was acute upper respiratory infection. Therapy consisted of steam inhalations, bed rest and administration of aureomycin hydrochloride 250 mg. every six hours Within 12 hours the patient was afebrile and generally much improved. However, the symptoms recurred after 24 hours, the temperature rising to 102.5 F. Aureomycin therapy was stopped on account of nausea of the patient, who was then given 600,000 units of procaine penicillin G in peanut oil intramuscularly every 24 hours, together with 1 Gm. of gantrisin® every three hours. High fluid intake was encouraged. The only other medicaments prescribed were aspirin (acetylsalicylic acid) 10 grains (0 65 Gm) and codeine ½ grain (0.03 Gm) every four hours as necessary for headache and malaise On the fifth day of this regimen the temperature of the patient rose to 104 F. and she appeared acutely ill, now complaining of sore throat, burning distress in the substernal and epigastric regions, moderate prostration and severe pain in the head, neck, back and muscles.

From the Department of Internal Medicine, Grand Forks Clinic, and the University of North Dakota School of Medicine

[1] Schnitzer, R J, and others Pharmacological and Chemotherapeutic Properties of 3,4 Dimethyl 5-Sulfanilamido Isoxazole, J. Pharmacol & Exper. Therap **88:** 47 57 (Sept) 1946 Sarnoff, S J, Freedman, M. A, and Hyman, A A: The Treatment of Bacillus Proteus Infections with NU 445, J Urol **55:** 417-427 (April) 1946 Svec, F. A., Rhoads, P. S, and Rohr, J. H · New Sulfonamide (Gantrisin)· Studies on Solubility, Absorption and Excretion, Arch Int Med **85:** 83 90 (Jan) 1950 Haines, W. H, and Miceli, S: Some Observations on the Management of B Proteus Infections of the Urinary Tract, Pennsylvania M J. **50:** 1328 1330 (Sept) 1947. Carroll, G ; Allen, H N., and Flynn, H.. Gantrisin: An In Vivo and In Vitro Study in Urinary Infections, Urol & Cutan. Rev. **53:** 677-683 (Nov.) 1949 Schiffrin, M J: Gantrosan, Mod Hosp **72:** 104 110 (March) 1949. Wuest, H. M, and Hoffer, M.: Isoxazole Derivatives of Sulfanilamide, United States patent 2,430,094, Official Gazette, United States Patent Office **604:** 112 (Nov. 4) 1947. Rhoads, P. S ; Svec, F. A, and Rohr, J. H: Laboratory and Clinical Observations on the Use of a New Sulfonamide· 3,4 Dimethyl 5-Sulfanilamido Isoxazole (NU-445), J. Lab & Clin. Med **32:** 1530 1531 (Dec) 1947. Bryer, M. S, Schoenbach, E. B ; Ott, C E, and Long, P. H.: The Experimental Pharmacology and Effectiveness of 3 4,Dimethyl 5-Sulfanilamido Isoxazole, abstracted, Bull Johns Hopkins Hosp **82:** 633-635 (June) 1948 Marshall, E K, Jr: Distribution of 3,4 Dimethyl 5-[illegible] he Body, Proc Soc Exper Biol & Med [illegible] 948 Rhoads, P S., and Schram, W. R.: [illegible] Extraction Prevention with Penicillin and 3,4-Dimethyl 5 Sulfanilamide Isoxazole (Gantrosan), abstracted, J Lab & Clin Med **33:** 1461 (Nov) 1948 Fergusson, J D, Reinold, D G, and Wrigley, F. Dimethylsulphanilamido Isoxazole (NU 445) in Urinary Infections, Lancet **2:** 969 971 (Dec 18) 1948 Wilhelm, S F, and Orkin, L A: The Increased Pathogenicity of Bacillus Lactis Aerogenes in Urinary Tract Infections, J. Urol **61:** 131 139 (Jan) 1949 Dowling, H F, Sweet, L K, Hirsh, H L, and Lepper, M H. Specific Therapy of Bacterial Infections of Central Nervous System, J A M. A **139:** 755 758 (March 19) 1949 Schweinburg, F. B, and Rutenburg, A M · NU 445 in the Treatment of Urinary Infections Due to Gram Negative Bacilli, Proc Soc Exper. Biol & Med **71:** 20 23 (May) 1949, A Simple Method for Determining Sulfonamide Sensitivity in Vitro and Its Clinical Application, J Lab & Clin Med **34:** 1457-1461 (Oct) 1949 Siniscal, A A: Trachoma in Missouri, Arch Ophth **42:** 422 437 (Oct) 1949 Whelton, R L, Caldwell, E R, Jr, Lepper, M H, Sweet, L K, and Dowling, H F: The Treatment of Poliomyelitis and Phenosulfazole, J Pediat. **35:** 447 450 (Oct) 1949 Wilhelm, S F, Schloss, W. A, Orkin, L A, Seligmann, E, and Wassermann, M: Aerobacter Aerogenes Infection of the Urinary Tract. Effective Treatment with Aureomycin, J. A M A **141:** 837-839 (Nov 19) 1949 Herring, A L · The Use and Abuse of Urinary Antiseptics, Mississippi Doctor **27:** 329 332 (Dec) 1949 Footnotes 2, 6a and 8

[2] (*a*) Rodger, R S, and Colby, F. H.. A Clinical Evaluation of a Recent Sulfonamide NU-445, J Urol **59:** 659 663 (April) 1948 (*b*) Narins, L. The Treatment of Bacillus Coli and Bacillus Proteus Infections of the Urinary Tract with a New Sulfonamide (NU 445), ibid **59:** 92 95 (Jan) 1948 (*c*) Rhoads, P S, Svec, E A, and Rohr, J H · Clinical Evaluation of a New Sulfonamide Gantrisin, Quart Bull Northwestern Univ M School **23:** 104 111, 1949, (*d*) Observations on the Use of a New Sulfonamide, Gantrisin, Mississippi Valley M J **71:** 87-89 (May) 1949, (*e*) Bacterial Meningitis Results of Treatment in 17 Cases with New Sulfonamide (Gantrisin), Arch Int Med **85:** 259-264 (Feb) 1950 (*f*) Lazarus, J A, and Schwarz, L H · A Clinical Study of a New Sulfonamide (NU 445) in the Treatment of Urinary Tract Infections, J Urol **61:** 649 657 (March) 1949 (*g*) Thompson, H. T.: A Clinical Evaluation of Gantrisin (NU 445), ibid **62:** 892 (Dec) 1949 (*h*) Brickhouse, R L, Lepper, M H, Stone, T E, and Dowling, H. F The Treatment of Pneumonia and Other Infections with a Soluble Sulfonamide, Gantrisin (NU 445; 3,4 Dimethyl 5 Sulfanilamido Isoxazole), Am J M Sc **218:** 133 137 (Aug) 1949

[3] Footnote 2, parts c, e and g

[4] Footnote 2, parts a through e, g and h

[5] Footnote 2, parts c through g

[6] (*a*) Sarnoff, S J. Studies on 3,4 Dimethyl-5 Sulfanilamido Isoxazole (NU 445) in Humans, Proc Soc Exper Biol & Med **68:** 23-26 (May) 1948 (*b*) Footnote 2, parts c, d, e and h

[7] Footnotes 2, parts d, g and h, and 6a.

[8] Thompson, H T.· Personal communication to the authors.

On Jan. 10, 1950 she was admitted to the Grand Forks Deaconess Hospital. The temperature was 104.6 F., the pulse rate 130 per minute and the respiratory rate 20 per minute. The scleras were not injected. A round, sharply circumscribed 0.5 cm. lesion with necrotic center and erythematous periphery was noted on the buccal mucosa opposite the right lower canine tooth. Likewise, two smaller lesions were noted on the lower anterior buccal mucosa. No other skin or mucous membrane lesions were in evidence. The nasal and pharyngeal mucosa appeared normal. The blood pressure was 140 systolic and 75 diastolic. The heart, lungs, pelvis, rectum and reflexes were entirely normal. There was moderate tenderness in the epigastrium, but no masses were palpable. The spleen definitely could not be palpated.

Roentgen appearance of the chest was normal except for a calcified primary tuberculous complex in the left hilar region and moderate increase in bronchovascular markings throughout both lung fields. The urine was normal except for a trace of albumin. The hemogram showed red blood cells 3,990,000 per cubic millimeter and hemoglobin 12.2 Gm. (72 per cent). White blood cells were counted three times and averaged 1,500 per cubic millimeter. The differential count showed total absence of granulocytes, 78 per cent lymphocytes, 22 per cent monocytes, no eosinophils and no basophils. Bleeding and coagulation times were normal. The blood platelets numbered 282,000 per cubic millimeter. Subsequent differential counts were made on buffy coat smears, and these results together with serial white blood counts are shown in the accompanying table. Agglutination tests for infectious mononucleosis, typhoid, paratyphoid and brucellosis were negative.

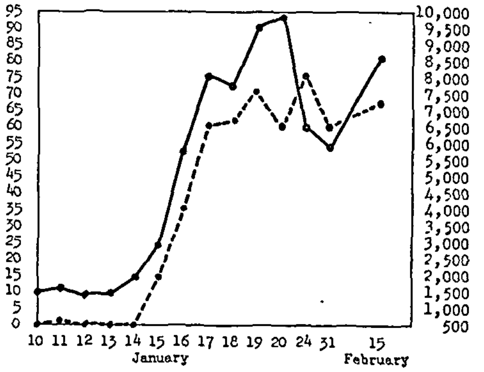
Course in the Hospital.—The patient became progressively worse for four days after admission to the hospital. She complained of extreme weakness, burning substernal and epigastric distress, sore mouth, headache and chilly sensations. Fever was intermittent, rising to 103 F. or less several times daily. The first few days of therapy consisted of strict bed rest, orally given aureomycin 500 mg. every six hours, aqueous crystalline penicillin G 100,000 units intramuscularly every three hours and pentnucleotide® (an 8 per cent solution of the sodium salts of four pentose nucleotides derived from yeast nucleic acid by mild alkaline hydrolysis) 2 ampules daily intramuscularly. Gantrisin® therapy was discontinued immediately on discovery of leukopenia and agranulocytosis. In addition to these measures the patient received 250 cc. of whole blood twice daily from January 12 to 14 inclusive. On Jan. 11, 1950 new lesions, similar to those described previously, were noted on the epiglottis.

Blood Picture in a Case of True Agranulocytosis Due to Gantrisin®

Date	W. B. C.	Neutrophils, %	Lymphocytes, %	Eosinophils, %	Basophils, %	Monocytes, %
1/10/50	1,500	0	78	0	0	22
1/11/50	1,600	1	90	0	0	10
1/12/50	1,400	0	77	0	0	23
1/13/50	1,450	0	74	0	0	26
1/14/50	1,950	0	49	0	0	51
1/15/50	3,000	14	67	0	0	19
1/16/50	5,700	36	54	0	0	10
1/17/50	8,000	60	33	0	0	7
1/18/50	7,700	62	31	1	1	5
1/19/50	9,500	71	24	0	0	5
1/20/50	9,800	60	34	0	0	6
1/24/50	6,500	76	20	0	0	4
1/31/50	5,800	59	35	0	1	5
2/15/50	8,700	67	29	1	1	2

The accompanying chart depicts the rise in total leukocytes with the reappearance and precipitous rise of neutrophils. Total absence of granulocytes persisted for five days after the diagnosis was made. A dramatic rise from zero to 60 per cent occurred in only three days, and similarly total leukocytes rose from 1,950 to 8,000 during the same period. Improvement in the patient's symptoms paralleled reversion of the blood picture to normal. Several peripheral blood smears were made daily from January 10 to 20 inclusive and appeared essentially normal except for the disturbance in granulocytes and total leukocytes (table). No buffy coat was demonstrated in the centrifuged venous blood specimens from which peripheral smears were made from the top millimeter of the packed cells.

Bone marrow aspirations were performed on Jan. 12 and 15, 1950. Each specimen was aspirated from the sternum, treated with heparin-oxalate mixture and centrifuged; smears were made from the buffy coat. Examination of smears taken on January 12 showed the nucleated red cell elements to be relatively increased. Maturation was of the normoblastic type, but there appeared to be an arrest in development at the level of the late polychromatophilic stage. The earlier developmental stages were well represented, but few late polychromatophilic forms were present. They comprised only 6 per cent of the 32.5 per cent red cell elements. No orthochromatic normoblasts were found. Megakaryocytes were few but probably not reduced below the normal number. Their morphology and that of the platelets appeared normal. The differential count of nucleated cells was: "blast" forms 9 per cent; promyelocytes 15 per cent; myelocytes 5 per cent; metamyelocytes (all types) zero; red blood cells 32.5 per cent; lymphocytes and monocytes 38.25 per cent; neutrophils zero; eosinophils zero, and basophils 0.25 per cent.



Graphic presentation of the reappearance of neutrophils and rise of total leukocytes in peripheral blood in a case of true agranulocytosis due to gantrisin.® The figures at the left represent the percentage of neutrophils (broken line on chart), the figures at the right the leukocytes per cubic millimeter (solid line on chart).

The absence of the late developmental forms of granulocytes was striking. There was a relative increase in myeloblasts, but probably no actual increase in their number. These cells showed normal structure. In some instances the promyelocytes showed heavy, coarse, azurophilic granulation. Myelocytes were reduced in number, both relatively and absolutely. Many of those seen had large vacuoles and multilobed nuclei. This was believed to be an artefact due to the use of oxalate. (However, at the time of the second marrow aspiration on Jan. 15, 1950 a direct smear was made before contact with oxalate. In this preparation vacuoles were also noted in the myelocytes, but the change was not nearly as pronounced as in the portion of the specimen treated with the heparin-oxalate mixture.)

No metamyelocytes of any type were seen, and, with the exception of two damaged basophils, no mature granulocytes could be found. All granulocytic forms from the late myelocyte on had completely disappeared. The lymphocytes and monocytes were relatively increased in the marrow. The lymphocytes showed functional changes similar to those seen in the peripheral blood. No abnormal cell forms were noted. These smears were also reviewed by Dr. M. M. Hargraves of the Mayo Clinic, who concurred in the opinion that they were typical of agranulocytosis secondary to drug sensitivity.

Examination of peripheral blood smears on Jan. 12, 1950 showed slight anisocytosis and hypochromia of red blood cells. There was no evidence of red cell regeneration. Platelets appeared to be present in normal numbers and to have typical morphologic characteristics. Leukocytes were greatly reduced in number. The white blood cell count was 1,400. The differential count (see table) was lymphocytes 77 per cent and monocytes 23 per cent. No neutrophils could be found in several smears. A sample of venous blood was drawn, using a commercial heparin-oxalate mixture as anti-coagulant, and centrifuged. No buffy coat was apparent. Smears made from the top millimeter of the packed cells showed essentially the same differential count, and neutrophils were not seen. Eosinophils and basophils were absent. The lymphocytes showed mild functional alterations. The monocytes showed no apparent morphological change.

A second sternal aspiration on Jan. 15, 1950 showed the following differential count of nucleated elements: "blast" forms 3 per cent; promyelocytes and myelocytes 34 per cent; metamyelocytes 19 per cent; red blood cells 22 per cent; lymphocytes 21 per cent; neutrophils 1 per cent, no eosinophils and no basophils. Comparison with previous smears showed a decided increase in the number of orthochromatic normoblasts. The granulocytic series showed pronounced change. Myelocytes had greatly increased in number, and metamyelocytes had reappeared. As previously mentioned, myelocytes and metamyelocytes showed small vacuoles in the direct smear. Vacuolization and bizarre multilobed nuclei were frequent in smears made from the buffy coat after the use of an anticoagulant mixture.

The patient made a complete recovery and was discharged from the hospital on Jan. 20, 1950. Subsequent leukocyte and differential counts on peripheral blood were normal. She was last seen on Aug. 10, 1950, when complete physical examination and blood studies indicated that her general health was excellent.

COMMENT

Although it cannot be proved with certainty that gantrisin® caused the agranulocytosis in this case, we believe it is fair to assume that the drug was the most likely cause. None of the other medicaments given prior to the onset of the patient's agranulocytosis are known incitants of this phenomenon. In any event it is highly improbable that penicillin or aureomycin could be responsible, because these drugs were administered during the course of the agranulocytosis from which the patient recovered. Furthermore, it was estimated that the patient took a total of 30.0 Gm. of gantrisin® over a period of five days, an amount which is more than adequate to depress the granulocytes should sensitivity to the drug occur.

SUMMARY AND CONCLUSIONS

A case of true agranulocytosis probably resulting from the use of gantrisin® (3,4-dimethyl-5-sulfanilamide isoxazole) is reported. The onset and subsidence of the condition closely paralleled administration and discontinuance of the drug. Careful studies of peripheral blood and bone marrow and follow-up examinations of the patient served to exclude other blood dyscrasias.

This report is made with the hope of discouraging indiscriminate use of the drug. Even when used with the proper indications the leukopoietic status of the patient should be checked more consistently than appears to be the practice from a perusal of current literature.

221 South Fourth Street.

Blood Sugar and the Liver.—Soskin called the liver the primitive regulator of the blood sugar, which can operate in the complete absence of insulin and the pituitary. The stimulus which elicits the hepatic response is the blood sugar itself—the so-called "homeostatic mechanism." There is evidence that the liver is able to convert a wide variety of substances into glucose and glycogen, including carbohydrates such as fructose and galactose, proteins and fat. Hepatic gluconeogenesis is increased by the anterior pituitary hormone and inhibited by insulin. Epinephrine causes hyperglycemia, resulting in a sharp decrease, then rise of liver glycogen. In advanced hepatic disease hypoglycemia results. That the liver can convert lactic acid to glycogen and the muscle glucose to lactic acid is the basis for the Cori cycle. The removal of lactic acid by the liver is important in carbohydrate metabolism. By this cycle the muscle and liver glycogen become virtually interchangeable, which is clearly demonstrated by the action of epinephrine and in muscular action.—Jean T. Hugill, M.D., Liver Function and Anesthesia, *Anesthesiology,* September 1950.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

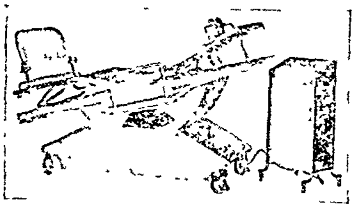
Howard A. Carter, *Secretary.*

McKESSON RESPIRAID ROCKING BED ACCEPTED

Manufacturer: McKesson Appliance Company, 2228 Ashland Avenue, Toledo 10, Ohio.

The McKesson Respiraid Rocking Bed is designed to aid respiration in certain diseases of the nervous system, particularly poliomyelitis, and to aid the circulation in cases of peripheral vascular disease. The apparatus is a bed with the spring and mattress so mounted that they can oscillate. The moving parts are provided with rests for the feet and shoulders to keep the patient from sliding back and forth on the mattress.

The unpacked apparatus is stated to measure 127 (height) by 101 by 198 cm. (50 by 40 by 78 inches) and to weigh 250 Kg. (550 pounds). Crated for foreign or domestic shipment, it makes three boxes weighing altogether 455 Kg. (1,000 pounds). It requires a source of 60 cycle alternating current at 110 volts and draws a maximum of 2,400 watts (20 amperes). The frequency of oscillation can be adjusted to from 0 to 30 times per minute.



McKesson Respiraid Rocking Bed

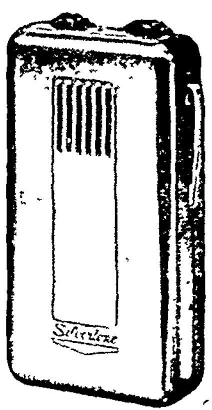
Evidence obtained from several acceptable sources led the Council to conclude that the rocking bed is useful but that hospitals should not be encouraged to purchase the apparatus with the idea that it is suitable for use in every type of emergency calling for artificial respiration. There was general agreement as to the value and limitations of this device. It does not take the place of the tank respirator but can be used as a means of weaning patients away from the tank respirator. The Council on Physical Medicine and Rehabilitation voted to include the McKesson Respiraid Rocking Bed in its list of accepted devices with the understanding that the manufacturer will not represent it as complete equipment for handling all types of respiratory failures.

SILVERTONE HEARING AID, MODEL M-35, ACCEPTED

Manufacturer: Micronic Company, 727 Atlantic Avenue, Boston 11.

Distributor: Sears, Roebuck & Company, 925 South Homan Avenue, Chicago 7.

The Silvertone Hearing Aid, Model M-35, is an electric device differing from the Micronic Model 101 (Council-accepted) only in the exterior etching and front grille design. Excluding the clothing clips and the projecting controls, it measures 105 by 58 by 22 mm. With batteries, receiver cord and receiver, it weighs 186.5 Gm. Evidence from sources acceptable to the Council showed that this device was satisfactory in construction and performance. The Council on Physical Medicine and Rehabilitation voted to include the Silvertone Hearing Aid, Model M-35, in its list of accepted devices.



Silvertone Hearing Aid
Model M-35

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. - - - CHICAGO 10, ILL.

Edited by
AUSTIN SMITH, M.D.

Associate Editor
JOHNSON F. HAMMOND, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Subscription price - - Twelve dollars per annum in advance
Cable Address - - - - "Medic, Chicago"

SATURDAY, DECEMBER 2, 1950

IONIZING RADIATION AND BLOOD-FORMING TISSUES

Since Heineke's pioneering research 35 years ago, it has been known that the blood-forming tissues are extremely sensitive to ionizing radiations.[1] Studies on normal laboratory animals exposed to a single dose of whole body irradiation in the LD_{50} range (dose required to kill one-half the animals exposed within a period of 28 days after irradiation) have shown that the bone marrow and the lymphatic structures go through the following phases: (1) destruction characterized by disintegration of cells, (2) active phagocytosis of the cellular debris, (3) atrophy, during which free cells are absent or at a minimum, and, finally, (4) regeneration. In rabbits exposed to a single dose of 800 r total body irradiation, phases 1 and 2 usually are completed within 24 hours, phase 3 (atrophy) may persist to or beyond the tenth postirradiation day but phase 4 (regeneration), though sometimes beginning as early as the eighth or tenth day, may not be complete for three weeks or even longer.[2] In the bone marrow, complete recovery usually is prompt. Erythrocyte, thrombocyte and granulocyte precursors in the marrow may reach or exceed normal by the fourteenth postirradiation day, and in the peripheral blood this repair is reflected by a normal or even an increased number of reticulocytes, thrombocytes and heterophils (neutrophils in man). In the lymphoid tissue, however, though there is some diffuse regeneration in the first two weeks following irradiation, complete recovery is slow, lymphatic nodules in the lymph nodes and white pulp of the spleen being not yet normal by the fourteenth day and the number of lymphocytes in the circulating blood remaining below normal for 30 days or more. It has been assumed that free cells are restored to the atrophic hematopoietic tissue by regeneration homoplastically from a few scattered surviving free cells and heteroplastically from fixed cells, such as those of the reticulum, and that it is suppression of these restorative processes that accounts for delay in regeneration of marrow and lymphatic tissue. Some investigators believe that delayed repair is caused by direct irradiation damage to reticular cells or surviving free cells, while others maintain that the delay is caused indirectly by the general toxicity or specific toxicity of radiation injury to the body as a whole.

Jacobson and his associates have reported that, in mice exposed to total body irradiation of 1,025 r, mortality is strikingly reduced and regeneration of the hematopoietic tissue is complete within eight days if the spleen has been surgically exteriorized and shielded from irradiation with lead. Without such shielding, this dose kills all the animals within 13 days and their hematopoietic tissues show little or no regeneration. In rats the shielding of the spleen or in rabbits of the spleen or the appendix reduces to one week or less the time required for regeneration of marrow and lymphatic tissue following exposure to 800 or 1,000 r of irradiation. Several explanations are offered: 1. The sparing of this amount of lymphatic tissue may reduce the general "radiation toxicity." 2. The lymphatic tissue that remains intact by virtue of shielding may supply humoral stimulation to hematopoietic tissue that is damaged by irradiation. 3. Cells from the intact lymphatic tissue may seed or colonize the damaged hematopoietic tissue. 4. Irradiation of the spleen and appendix may produce agents capable of suppressing regeneration of hematopoietic tissue, and the avoidance of irradiation of these organs prevents the production of such agents.

Radiologists long have known that subtotal body irradiation produces a briefer and less profound hematologic suppression than does total exposure of the body. They have noted, also, that the suppression is greater for some body parts than for others and that irradiation of the spleen alone in cases of myelogenous leukemia may be followed by sharp reduction of circulating leukocytes and the disappearance of cutaneous lesions. There have been numerous attempts to demonstrate in nonirradiated tissues of experimental animals inhibition or destruction produced indirectly by irradiation of other parts of the body, but the results have been negative or, at most, equivocal. Jacobson and his group [3] appear to be the first to have investigated the reverse situation, namely, the effect of nonirradiation of certain tissues, such as the spleen, on heavily irradiated tissues elsewhere in the body.

---

[1] Heineke, H.: Experimentelle Untersuchungen über die Einwirkung der Röntgenstrahlen auf innere Organe, Mitt. a.d. Grenzgeb. d. Med. u. Chir. **16:** 21, 1905.

[2] Jacobson, L. O.; Marks, E. K.; Gaston, E., and Block, M. H.: The Effects of Nitrogen Mustard on Induced Erythroblastic Hyperplasia in Rabbits, J. Lab. & Clin. Med. **34:** 902, 1949. Bloom, W.: Histopathology of Irradiation from External and Internal Sources, National Nuclear Energy Series, Manhattan Project Technical Section, New York, McGraw-Hill Book Company, 1948, vol. 221, division 4. Dunlap, C. E.: Effects of Radiation on the Blood and the Hemopoietic Tissues, Including ing the Spleen, the Thymus, and the Lymph Nodes, Arch. Path.: **34:** 562 (Sept.) 1942.

[3] Jacobson, L. O.; Marks, E. K.; Gaston, E. O.; Robson, M., and Zirkle, R. E.: The Role of the Spleen in Radiation Injury, Proc. Soc. Exper. Biol. & Med. **70:** 740, 1949. Jacobson, L. O.; Simmons, E. L.; Bethard, W. F.; Marks, E. K., and Robson, M. J.: The Influence of the Spleen on Hematopoietic Recovery After Irradiation Injury, Proc. Soc. Exper. Biol. & Med. **73:** 455, 1950. Jacobson, L. O.; Marks, E. K.; Robson, M. J.; Gaston, E., and Zirkle, R. E.: The Effect of Spleen Protection on Mortality Following X-Irradiation, J. Lab. & Clin. Med. **34:** 1538, 1949. Jacobson, L. O.; Simmons, E. L.; Marks, E. K.; Robson, M. J.; Bethard, W. F., and Gaston, E. O.: The Role of the Spleen in Radiation Injury and Recovery, J. Lab. & Clin. Med. **35:** 746, 1950.

The fact that the sparing of the spleen (which weighs only 1/2000 as much as the entire body of the rabbit) enables the heavily irradiated lymphatic tissue of the animal to be well on the way to recovery within four days indicates that the responsible factor or factors are potent and prompt acting and suggests that the agent may be a humoral factor supplied by the intact splenic tissue. If this proves to be the case, then perhaps the agent can be isolated, identified and eventually made available for the treatment of excessive exposure to ionizing radiation.

ACCIDENT PREVENTION IN CHILDHOOD

Dr. Dietrich, in a contribution to this issue of THE JOURNAL (page 1175), calls attention to the brilliant accomplishments in the last half-century in the fields of public health and preventive medicine with resulting dramatic reduction in the mortality and morbidity of most infectious diseases and to the contrasting essentially unchanged death rate from accidents. The situation reflects lack of information on the part of the laity and some apathy on the part of the medical profession. The lack of interest in the subject is the result not so much of inadequate information as of insufficient emphasis. THE JOURNAL has recently devoted two current comments on the subject. One of these[1] cited figures from the National Office of Vital Statistics: of 32,960 deaths from all causes in 1946 among persons 5 to 19 years old, 37 per cent (12,342) were caused by accidents, as compared with 35 per cent in 1945 and 34 per cent in 1941. The conclusion is inescapable that the greatest problem in preservation of lives of children is accident prevention.

According to Dr. Dietrich the problems of poliomyelitis, heart disease, cancer and tuberculosis in children are dwarfed by the physical and emotional devastation brought by juvenile accidents. In one year 12,500 children were killed by accidents. The number of children who were permanently crippled is not known, but Dr. Dietrich would place it at about 50,000 annually.

Dr. Wheatley[2] states that not only do accidents kill more children after infancy than does any single disease but, in the ages from 1 to 14, inclusive, accidents take as many lives as pneumonia, diarrhea and enteritis, measles, diphtheria, meningitis, poliomyelitis, whooping cough and scarlet fever combined. According to Clark,[3] the important causes of death due to diseases in the United States in the 1 to 14 year groups are pneumonia, congenital malformations, tuberculosis, heart disease and cancer. However, in numerical importance all these rank far below death from accidents. To cite one example, Dr. Clark states that the death rate from diphtheria for all ages has been reduced from 40.3 per 100,000 population in 1900 to 0.6 per 100,000 in 1947. In this same interval the death rate from accidents has fallen only from 72.3 in 1900 to 69.4 in 1947.

In the prevention of accidents it is worth taking note of the fact that some children are accident prone. This may have something to do with the accident proneness of their parents and with psychological problems in the children themselves. Psychiatric counseling is advisable in such cases.

Recent contributions to the subject emphasize that accidents do not happen but are caused, and since they are caused they can be prevented. Dr. Dietrich introduces a new idea into the subject of accident prevention in children. This theory emphasizes the reciprocal relation of protection and education related to a child's age. Prevention of a particular type of accident must employ varying protective and educational pressures at different ages. During the first year of life the prevention is protection: the infant should not be dropped or allowed to fall. The protection must be 100 per cent. As soon as the infant becomes ambulant the problem is more complicated. Here one must add to protection education against accident. The ultimate mediators of any accident prevention program in childhood are the parents. Children past the age of 1 year should be exposed to the educational value of minor painful experiences. The 1 to 5 year age period is the critical one so far as death and crippling are concerned.

A certain amount of discipline, Dietrich emphasizes, is valuable in the educational aspect of accident prevention. Discipline should play an important role not only in accident prevention but in character building of a child by enabling him to obtain a sense of security.

All workers in the field of prevention of accidents to children emphasize that the responsibility for the distribution of information to parents rests primarily on the medical profession. Specific information on the subject of accident prevention in children can be obtained from booklets published by several of the leading insurance companies. The importance of the problem was reflected in the discussions of the recent meeting in Chicago of the American Academy of Pediatrics. Dr. George M. Wheatley of New York was appointed to head a new committee that will attempt to reduce the number of accidents among the children of our nation. In the final analysis, it is the general practitioner who can contribute most to this subject, for it is he who should advise the parents on all matters pertaining to the health and safety of children.

---

[1] Our Greatest Child Health Problem, current comment, J. A. M. A. **139**: 588 (Feb. 26) 1949.

[2] Wheatley, G. M.: Editorial: Child Accident Reduction: A Challenge to the Pediatrician, Pediatrics **2**: 367 (Sept.) 1948.

[3] Clark, E. B.: Leading Causes of Childhood Death, California Med. **73**: 22 (July) 1950.

ASSOCIATION OF MILITARY SURGEONS

Fifty-nine years ago, Nicholas Senn, a great surgeon, founded the Association of Military Surgeons of the National Guard. Dr. Senn, at that time Surgeon General of the Wisconsin National Guard, became the first president of this association. A few days ago in New York, the fifteenth president to be elected from the National Guard, Col. William Triplett of Baltimore, presided at the annual meeting and in his presidential address made a plea for physicians to offer their services to the National Guard. Colonel Triplett, who has devoted much of his life to this organization, knew of one regiment of the National Guard, whose history goes back to the Revolutionary War, that today has not a single doctor on its roster. The National Guard is important to the defense of this country, but its organization cannot be efficient or complete without the assistance of medical officers.

A brief review of the program at the New York annual meeting indicates the scope of activities this association now assumes. The opening session was privileged to hear representatives of the Army, Navy, Air Force, Public Health Service and Veterans Administration. The Director of Medical Services of the Department of Defense, Brig. Gen. Richard L. Meiling, pointed out that the military services should be able to provide the best medical services with a smaller ratio of physicians than was in use in the last great war. The Surgeon General of the Army, Major Gen. Raymond W. Bliss, who recently returned from Korea, reported that the medical services were doing an excellent job there under most difficult circumstances and that the mortality rate among the wounded was even less than in World War II. There was little serious disease among the troops. The Secretary General of the World Medical Association and Chairman of the Board of Trustees of the American Medical Association, Dr. Louis H. Bauer, reviewed some of the work which the World Medical Association has already accomplished and has under way. According to Dr. Howard A. Rusk, professor of physical medicine and rehabilitation, New York University—Bellevue Medical Center, the increasing average age of the population and the hazards inherent in present day living pose, perhaps, the greatest medical problem of the future in the field of rehabilitation. The present custom of retiring employees at a certain age, he said, is wasteful and deprives the nation of much of the wisdom that comes from experience. Dr. Rusk cited the recent retirement of the president of the largest corporation in the world and the almost immediate appointment of this executive to serve as ambassador in one of the most difficult positions of that kind. He recalled that the commander-in-chief of the Far Eastern forces is well past the customary retiring age and yet is vigorously prosecuting the war in Korea. The present system of having coroners determine the causes of sudden death was shown by Dr. Alexander Goettler, toxicologist to the Chief Medical Examiners Office of New York City, to be inadequate. Interesting cases of erroneous causes of death thus assigned revealed the need for thorough examinations by trained toxicologists in many cases of sudden death.

Capt. Lloyd R. Newhauser, U. S. Navy, in discussing a blood program in a national emergency was not in favor of mass blood grouping. When this method was tried on a large group in the Navy, he said, the errors amounted to about 10 per cent. The problems confronting the Council on National Emergency Medical Service of the American Medical Association were discussed by Dr. James Sargent, Council Chairman. These are derived from the necessity for planning for adequate military and civilian defense and from the Korean situation with respect to the procurement of physicians. Even the recently passed "doctor-draft law," while effective throughout the present program of expanding troop strength, is not a lasting answer to the needs of the Armed Forces for doctors. Special effort should be made by the medical schools, he said, to interest students in military medicine. Dr. Sargent proposed that machinery be set up through which those who are going into the service may be assured that their profession is genuinely interested in them, will give them council, will hear their complaints in confidence and will rectify them if just. He suggested that interested parties both in and out of service jointly help to accomplish a sensible revision of the whole system of our reserves. That, he said, calls for careful planning, in which there is "large room for civilian help."

The use of anticoagulants in military medicine and the selection of antibiotics for medical and surgical patients were discussed by Dr. Irving S. Wright, professor of clinical medicine at Cornell University, and Dr. Chester S. Keefer, professor of medicine, Boston University School of Medicine, respectively. Dr. William Stroud, professor of cardiology, University of Pennsylvania Graduate School of Medicine, interested the audience with his optimistic views of the treatment and prognosis of cardiovascular diseases.

Commanding officers sometimes pay a heavy price when they fail or refuse to follow the recommendations of the medical department. This fact was emphasized by Dr. Perrin H. Long, professor of preventive medicine at Johns Hopkins, who showed graphically the enormous increase of malaria in an armed force in Africa when troops, which had not followed the prophylactic measures recommended, entered certain malarial areas. This situation would be particularly distressing should the commanding officers themselves happen to be faddists or refuse to follow the recommendations of the medical department. Thus, the service of a large body of fighting men may be lost for a time. A supplementary report on dimenhydrinate (dramamine®), the surgery of World War III and the cold war were discussed by Dr. Leslie N. Gay, associate professor of medicine at Johns Hopkins, Dr. William

MacFee, surgical director, St. Luke's Hospital, New York, and Paul Linebarger, professor of Asiatic politics, School of Advanced International Studies, Washington, D. C., respectively. Professor Linebarger said that politics is unscientific and is now in a state comparable to the backward state that medicine was in hundreds of years ago.

In addition, the aviation corps panel, the medical services panel, the nurse corps panel, the dental corps panel and the veterinary corps panel each had its own sessions. Col. Amos R. Koontz, professor of surgery, Johns Hopkins University School of Medicine, Baltimore, chairman of the program committee, is to be congratulated on arranging an excellent program.

The Association of Military Surgeons in the United States, which began as a National Guard organization, has expanded its membership to include the other uniformed services; to the annual meetings also come representatives from many of our neighboring countries. Its aims are to increase the efficiency of the medical services both in peace and war, to preserve lessons learned the hard way, to create new ideas for the better care of the sick and wounded and the prevention of epidemics. This middle-aged association is indeed vigorous. It welcomes new members to help keep it so.

COCKROACH VECTORS OF VIRUS DISEASE

Experimental evidence suggesting that under certain conditions cockroaches may serve as vectors of polioencephalomyelitis group viruses is reported by Syverton and Fischer[1] of the departments of bacteriology, universities of Minnesota and North Dakota.

Adult cockroaches were strapped to corks with adhesive tape. By means of a tuberculin syringe with a blunt needle, each cockroach was given a single feeding of 0.2 cc. of a 10 per cent suspension of brain tissue from a mouse dying from encephalomyelitis. The diet thereafter consisted of fox chow and water. Fecal specimens for each 24 hour period were collected daily.

Each 24 hour fecal sample was made up separately into a 1 per cent emulsion in saline solution containing 500 units of penicillin and 100 micrograms of streptomycin per cubic centimeter. After standing at room temperature for 30 minutes, each specimen was centrifuged, and 0.03 cc. of the supernatant fluid was injected intracranially into a normal 21 day old white mouse. Control injections were made with fecal material from normal cockroaches.

For each of the first six consecutive days after the experimental feeding the fecal suspensions contained sufficient virus to paralyze and kill mice in two to four days. On and after the seventh day, results of the tests were negative. All control mice remained normal.

Because of the gregariousness, longevity and nocturnal habits of cockroaches, and the intimacy and constancy of their association with the food and excreta of man and animals, this experimental evidence is of suggestive clinical interest.

---

[1] Syverton, J. T., and Fischer, R. G.: Proc. Soc. Exper. Biol. & Med. **74:** 296 (June) 1950

AN ANTIBIOTIC FROM RED BLOOD CELLS

Whitney[1] and associates of the Department of Preventive Medicine, University of Texas, report the preparation of a new antibiotic from human red blood cells, which is active against a wide range of gram-positive and gram-negative bacteria. Recognition of antibiotics of animal origin is not new. As early as 1945, Konikova[2] of the Soviet Union prepared bacteriostatic extracts of rabbit liver and human placenta. Bloom,[3] Waksman[4] and others afterward isolated antibacterial peptides from other animal tissues. One of them was named "erythrin," since it was prepared from red blood cells. Pavan[5] of Italy afterward prepared antibacterial extracts from the tissues of helminths, arthropods, molluscs, fish, amphibia and reptiles.

To prepare the blood antibiotics the Texas biochemists drew blood samples from men, cattle, dogs, rabbits and chickens. These blood samples were allowed to coagulate. The clots were then separated from the serums, triturated in distilled water and lyophilized. The desiccated material thus obtained was suspended in phosphate buffer solution containing trypsin and incubated for five hours at 37 C. The digest thus obtained was then inactivated by heating to 65 C. for 30 minutes. Similar hydrolysates were made from commercial bovine hemoglobin powder. The resulting clear dark brown tryptic digests were tested quantitatively for antibacterial properties by spot dilution methods on glucose agar plates.

With the bovine blood antibiotic the tests showed complete growth inhibition for such organisms as Staphylococcus aureus, Sarcina lutea, Streptococcus viridans, Bacillus anthracis and Escherichia coli. There was a slightly less pronounced inhibition with human and canine blood antibiotics. Only partial inhibitions were recorded with chicken antibiotic. These antibiotics were nontoxic even when repeatedly injected intra-abdominally in large doses into mice or guinea pigs.

The antibacterial substances derived from erythrocytes resist exposure to 120 C. for 15 minutes at a p_H range of 7.8 to 9.0. At p_H 5.5 or lower they are precipitated. The authors believe that the active principle in blood antibiotics is a peptide-amino acid complex. Its relation to conventional immunity mechanisms has not yet been determined.

---

[1] Whitney, D. M.; Anigstein, L., and Micks, D. W.: Proc. Soc. Exper. Biol. & Med. **74:** 346, 1950.

[2] Konikova, A. S.; Urasova, A. P., and Asarkh, R. M.: Acad. Sc. U. S. S. R. **47:** 565, 1945.

[3] Bloom, W. L.; Watson, D. W.; Cromartie, W. J., and Freed, M.: J. Infect. Dis. **80:** 41, 1947.

[4] Waksman, S. A.: Microbial Antagonists and Antibiotic Substances, New York Commonwealth Fund, 1947, p. 415.

[5] Pavan, M.: Ricerca scient. e ricostruz. **19:** 1011, 1949.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

As a result of the broadening sphere of influence of the American Medical Association in public affairs that affect the physical and economic well-being of the country, the President of the A. M. A. often has questions put to him by the press that are questions of public policy, rather than medical or scientific inquiries. One of the national press associations recently submitted a series of questions to me—some of which I would like to share with the readers of THE JOURNAL, as both the questions and my answers touch on matters of importance to our profession.

Here are a few of the questions and answers:

Q. Were doctors and/or their wives active in the election campaign?

A. The American Medical Association has not engaged in partisan politics for the election or defeat of individual candidates, but tens of thousands of doctors and their wives, acting as individual citizens, undoubtedly played a vital part in the recent elections. We believe this has been a healthy thing for the whole country and the medical profession would have been derelict in its duty if doctors had not fought for their convictions at the polls. It is paradoxical and somewhat amusing that those who now complain that doctors are too active politically were complaining just as loudly, only a few years ago, that the medical profession failed to take a proper interest in elections and public affairs. Undoubtedly one of the reasons that the medical profession was singled out as the first objective of those in the government who were determined on a program of socialization was that the advocates of Socialism felt that physicians could not or would not defend themselves when brought under attack. Fortunately, they erred in that diagnosis.

Q. Is the A. M. A. planning to "tone down" or intensify its drive against the Truman compulsory health insurance program?

A. There is no disposition on the part of American medicine to relax its vigilance or to relax its campaign against socialized medicine until the issue is finally resolved. The doctors of this country feel that there would be serious deterioration of medical care, endangering the health of the whole nation if physicians were regimented under political domination, and there will be no let up in medicine's fight so long as the danger exists. The American Medical Association also feels that the socialization of medicine in this country would be an irrevocable step toward a controlled economy and state socialism, which would affect not only physicians but people in every field of endeavor. We are determined to play our part in defending not only medical freedom but freedom for all Americans, and we are very proud of the role that doctors have played in awakening the American people to the seriousness of the trend toward socialization in this country.

Q. When and where do you look for the next big fight to come on this issue (socialized medicine) in Congress?

A. The Truman Administration, rather than American medicine, undoubtedly will determine what course the fight in Congress will take. So long as Federal Security Administrator Oscar Ewing remains in office, undoubtedly there will be continued efforts by his agency to enact compulsory health insurance in one form or another, but your questions in this regard probably should be directed to Mr. Ewing, rather than to us.

Q. Are doctors satisfied with the election results?

A. The returns of the November election were, in many respects, very reassuring to the medical profession, because they clearly demonstrated that those in the government who are urging that we follow in the footsteps of the Socialist government of Britain are out of step with the American people. We do not believe, however, that there is any cause for overconfidence or relaxing of vigilance. Both Mr. Ewing and the compulsory health insurance program that he advocates received a "thumbs down" verdict from the American people. But whether Mr. Ewing and his associates will accept the mandate of the people and admit that compulsory health insurance is looked on with disfavor by the majority of the people, we have no way of knowing. Again, perhaps you should ask Mr. Ewing. He may have some other explanation for the defeat of many members of the Congress who were outstanding exponents of his program of socialized medicine.

There were a good many other questions propounded, but most of them were the questions which many of you are asked constantly and which you can readily answer. One of the interesting aspects of all this to me is that there is a growing appreciation on the part of the press and national leaders that doctors have become alert, aggressive citizens—and that they are interested in the well-being of the country, as well as the health of their patients. We have our critics, of course, who feel embittered because we have successfully opposed those who had hoped to ride roughshod over the medical profession. But we have a new, fine group of friends, all over this country, who respect and admire us because we refused to accept the defeatist doctrine of the inevitability of government-controlled medicine—and struck out against it.

In this holiday season, as we near the end of the old year and face the problems and challenges of 1951, we have much to be thankful for, because we have earned a new measure of public confidence and public esteem, which is a great safeguard against those who would strip us of medical freedom. But because of the warm support we have achieved, we also have a great responsibility to the people of this country.

I would like to close this column by repeating as my pledge for the New Year, several lines from the Presidential Oath of Office that I took in San Francisco last June:

"I shall dedicate myself and my office to improving the health standards of the American people and to the task of bringing increasingly improved medical care within the reach of every citizen. I shall champion the cause of freedom in medical practice—and freedom for all my fellow Americans."

I hope every doctor will take that pledge with me.

ELMER L. HENDERSON, M.D.
Louisville, Ky.

WASHINGTON NEWS

(From the Washington Office of the American Medical Association)

Decentralization of Commissioning Authority

The Army has announced a speed-up of its procedure for granting reserve medical commissions. It amounts to a decentralization of commissioning authority, with Army area commanders in this country and overseas commanders authorized to grant commissions without reference to Army headquarters in Washington. The changes will be of greatest importance to registrants under the doctor-draft, who face the possibility of involuntary induction and loss of the $100 per month pay bonus. At the time the registrant reports for his physical examination he will be given an opportunity—the last as far as the Army is concerned—to apply for a reserve commission as a volunteer. If he accepts, his records will go immediately to the appropriate Army commander, who will determine the registrant's qualifications and mail him a letter of appointment if he is acceptable. The physician is instructed to take the oath of office within 72 hours of receipt of this notice. Then he is to notify his Selective Service Board of his commission. When the board is so informed, Selective Service will cease to process him for induction. If registrants take advantage of this system, the Army will complete its processing after the commissioning. The man will not be assigned to active duty until all regulations have been complied with, but meanwhile he will be assured a volunteer's status and the pay bonus. In the case of registrants who persist in refusing to accept commissions, records will be returned to their draft boards, rather than sent to Army commanders, when they complete their physical examinations. Draft boards then will list them as eligible for involuntary induction to meet calls from the armed services.

Physical Fitness of Reserve Officers

The Federal Register of November 21 carries detailed regulations covering appointment, reappointment and retirement of all Army reserves, including medical. The document may be purchased by sending 15 cents to the Superintendent of Documents, Government Printing Office, Washington, D. C. The regulations cover, in addition to physicians, medical service officers, nurses and medical technicians. For men now enrolled in the reserves the regulations have this to say about maintenance of physical fitness: "The maintenance of physical fitness is largely an individual responsibility, particularly with reference to remedial defects. Each officer has a definite obligation to maintain himself in good physical condition in order that he may perform his duties efficiently. Each individual, therefore, should seek timely medical advice if he has reason to believe that he has a physical defect which affects or is apt to affect his physical well being." Physical examinations by civilian physicians are authorized, but in this case the reserve officer himself must pay for the examination. As in the past, periodic physical examination of all reserve officers will be scheduled only when funds are available.

The New Congress

When the new congress meets, the administration will lose strength in committees as well as in total membership of House and Senate. For routine operations this is of little consequence. However, in the case of highly controversial legislation that has administration backing, the difference of one or two votes in a committee often is decisive. The realinement, which will be worked out in conference of party leaders in the next few weeks, might prove significant in several committees that handle almost all legislation of a medical or health nature. In the House, the Democrats will have no more than 236 votes, a loss of 24 votes for most roll calls. This should mean additional Republican seats on all large committees, including Armed Services, Expenditures in the Executive Departments and Interstate and Foreign Commerce. In the next two years all these committees will be handling legislation important to the medical profession. The armed services committee will consider extension of the doctor-draft and all other medical legislation involving the military services. The Expenditures Committee will hold hearings on government reorganization plans, including the proposal to make the Federal Security Agency into a cabinet department, if Mr. Truman again presses for this plan. The bulk of medical legislation—including national health insurance—comes within the province of the Interstate and Foreign Commerce Committee. In the Senate, about the same situation exists. There Republicans are in line for more voting power on such medically important committees as Labor and Welfare, Expenditures in the Executive Departments and Armed Services. At this stage speculation on individual committee assignments would be futile. Because in general House members are allowed to serve on only one major committee and senators on two, a great deal of shuffling and reshuffling will be required. There is a possibility that the session will be well under way before final committee lists are announced.

AEC Division of Biology and Medicine

Emphasis on civil defense planning is turning more attention toward the Atomic Energy Commission's Division of Biology and Medicine. The division has three broad fields of responsibility. It is expected to stimulate peacetime medical research through the use of radioactive substances, to devise technics for protecting the health of all persons working with radioactive material and to learn everything possible about the effects of atomic bombs on humans, animals and plants. Budget figures support the claim that the division is not expanding for expansion's sake. Although this year's appropriations for biology and medicine increased 26 per cent over last year's, the total AEC budget increased about 50 per cent. Division officials expect that their outside grants will level off at a figure only slightly in excess of this year's total, the actual rate depending largely on getting additional areas of research declassified. Once declassified, projects are open to any researcher. While in the secret classification, work must be carried on by AEC personnel or others who have undergone security checks. Although the division expects to continue to give general direction to research work, its primary responsibility narrows with each decision to declassify a certain project or phase of research.

For a time, the emphasis on security interfered seriously with AEC's research grants program. The National Research Council at first refused to administer the program as long as these restrictions prevailed, but now it is assisting to the extent of evaluating candidates. AEC's own Oak Ridge organization now administers the grants program. Unlike most government grant programs, the amount of money going to individual researchers and projects is not announced, although names of recipients are. AEC officials say the main reason for this secrecy is to avoid disclosing the primary research objectives. During the last full fiscal year, AEC invested about $17,500,000 in biologic and medical research, half for "on site" work in its own installations and the remainder as grants to outside researchers. A substantial share of the latter went for cancer research. AEC also sponsors a limited cancer research program at its own installations, including a 30 bed hospital at Oak Ridge.

The Medical Advisory Committee (Dr. Alan Gregg of the Rockefeller Foundation, chairman) does not allocate money but surveys progress in projects and makes recommendations as to fertile areas for investment of funds. It was a recommendation of this committee, incidentally, which recently caused AEC to step up its interest in the effect of radiation on the enzyme system. AEC's program for distribution of radioisotopes has brought the organization into direct contact with most large hospitals and schools. Isotopes are sent out at below cost—the $10 fee only helps to cover shipping costs. Because of this low cost, as well as other important advantages, the increasing use of isotopes is phenomenal. Domestic distribution the first six months of this year totaled 2,395, or 36 times that for the same period the previous year. Radiocobalt, particularly, is in great demand, and AEC officials expect that eventually it will completely replace radium in the treatment of cancer. The Isotopes Distribution Advisory Committee (Dr. G. Failla, Columbia University, chairman) must review all initial applications where the isotopes are intended for use on human beings. It also passes on other types of applications, but only when they are submitted to it by the commission.

In protection of personnel from excess radiation, the medical division and other groups associated with it have an almost perfect record. In the four years AEC has managed the program, there have been no deaths from radiation and only five injuries. Much of the work in this field is carried on by the Bureau of Standards in cooperation with AEC.

Although there have been no sensational discoveries, AEC is continuing its search for a specific treatment for radiation. One of its projects has established that aureomycin will decrease the mortality rate in rats and dogs exposed to lethal and near-lethal doses of radiation, and another, that a lead shield around the spleen will reduce the death rate of other experimental animals similarly exposed. Another project has shown that animals that inhale air composed largely of nitrogen prior to exposure may be expected to survive an otherwise lethal dose. Obviously this is just a start; out of this and other basic knowledge about radiation, researchers still must find a clew to a cure. Looking back on progress already made, AEC officials are sufficiently optimistic to state, "We are reasonably confident that eventually protection will be possible against midlethal doses and higher."

Cancer Control Facilities

The National Cancer Institute has issued a complete state by state and city by city summary of cancer control facilities, by far the most complete document yet assembled on the subject. The booklet is "Cancer Services and Facilities" (Public Health Service Publication no. 14) and is for sale by the Government Printing Office for 35 cents. It is intended as a source book, "particularly for those engaged in cancer control work or other activities affecting the cancer patient."

For each state the following information is supplied: citation of legislation under which state programs operate; agency in charge of program, its location and the name of its director; population statistics, including breakdown of white and nonwhite groups and of age groups; total number of cancer deaths for 1948 and breakdown of cancer locations; funds available, and source, for cancer work in that state; number of physicians and hospitals and hospital beds, and a description of special cancer facilities offered by that state. Following this, cancer clinics are listed by communities. Illinois, for example, has 46 cancer clinics, 20 of them located in Chicago and the rest in 24 other towns and cities.

The report underlines the extreme variation in sources of income for the programs as well as wide variation in the programs themselves. Because of large sums spent by some states for maintaining cancer hospitals and university research, an average for federal-state contributions would not be valid. However, here are some random examples of how the official programs are supported (all figures for the current fiscal year): Alabama is getting $77,353 from the federal government but is itself spending more than twice that; Connecticut is spending $83,230 of its own funds and collecting less than half that from the federal government; for every federal dollar Florida is getting, it is spending about six of its own; in Illinois, the ratio is about three federal dollars for every state dollar; Iowa spends almost seven federal dollars on cancer for each state dollar; Louisiana's ratio is about the same; Maryland is one of the states that operates on a relatively small federal allotment ($43,950) but spends no state money; Michigan is getting $123,095 from the federal government for its cancer program and is spending $9,360, a ratio of between 13 and 14 to one; Missouri is far at the other end of the scale, collecting $98,091 but spending $405,500 of its own funds; Delaware, likewise, finances most of its program, spending $50,000 as against $6,482 from the federal government. (All figures are from the Public Health Service report.)

Notes

A Defense Department spokesman says two factors helped to ease the demand for physicians: (1) an overestimate of casualties from the Inchon and Wonsan landings in Korea and (2) the Veterans Administration's action in agreeing to withdraw all but 790 of its patients from military hospitals. . . . Criticism of the doctor-draft has come from the Board of Regents, American College of Surgeons. In a letter to President Truman and top military medical officers, the board warned against waste of medical manpower and noted that casualties in the first four months of Korean fighting "were equal to only about one month's casualties in the United States from automobile accidents alone." . . . The Federal Security Agency has announced that it is prepared to help Israel to control disease and in general strengthen her public health facilities. The program will come under Point Four. . . . Dr. Don E. Nolan has been appointed manager of the new VA hospital in Seattle. He has been chief of Professional Services at the VA Dayton office. . . . Opened: VA 475 bed hospital at Wilkes Barre, Pa. Dedicated: VA 200 bed hospital at Altoona, Pa. . . . VA's latest technic for speeding service to veterans is a method of making facsimiles of roentgenograms. All original roentgenograms will be stored at the VA's Philadelphia Records Center, where, on request, facsimiles produced at a rate of one per minute by a solarization technic will be sent to hospitals or doctors treating veterans. . . . Alabama is the first state to receive federal funds to assist the permanently and totally disabled, a contribution authorized by amendments to the Social Security Act. The federal allotment will allow Alabama to boost its monthly payments from an average of about $11 per person to about $20. . . . The Government Printing Office has on sale the "Biographical Director of the American Congress," a monumental effort containing the names of the 9,942 persons who served in Congress along with short biographies. The book (2,057 pages) is crammed with important as well as incidental information about Congress. . . . The latest Public Health Grants for cancer total $324,525 and are divided among 17 projects. Under one grant, patients with lung cancer at several Massachusetts hospitals will be interviewed on smoking habits, exposure to occupational hazards, previous lung diseases, hereditary background and possible air impurities in their environment. The hope is that the various factors contributing to lung cancer will be isolated.

ORGANIZATION SECTION

THIRD ANNUAL MEDICAL PUBLIC RELATIONS CONFERENCE

Hotel Statler, Cleveland

Sunday and Monday, December 3 and 4

THEME: "EFFECTIVE COUNTY SOCIETY PUBLIC RELATIONS"

PROGRAM

Sunday, December 3

REGISTRATION

10:30 a. m., Euclid Room Foyer.

LUNCHEON

12:15 p. m., Euclid Room.

Toastmaster: Dr. George F. Lull, Chicago, Secretary and General Manager, American Medical Association.

Address of Welcome

Dr. George F. Lull

Keynote Address: Serve Your Profession Through Public Relations

Dr. John W. Cline, San Francisco, President-Elect American Medical Association.

GROUNDWORK FOR A SUCCESSFUL PR PROGRAM

2:15 p. m., Euclid Room.

Chairman: Dr. Cleo M. Miller, Nashville, Tenn., President, Nashville Academy of Medicine.

Who Directs the Work?

Dr. Russell B. Roth, Erie, Pa., Secretary, Erie County Medical Society.

Who Pays the Bills?

Mr. Arthur P. Tiernan, Evansville, Ind., Executive Secretary, Vanderburgh County Medical Society.

Finding the Sore Spots

Dr. John T. T. Hundley, Lynchburg, Va., President-Elect, Medical Society of Virginia.

Building the Program

Dr. Charles S. Lakeman, Rochester, N. Y., Chairman, Public Relations Committee, Monroe County Medical Society.

Enlisting the Membership

Dr. R. B. Chrisman, Miami, Fla., Secretary, Dade County Medical Society.

Questions and Discussion.

SPECIAL SCREENING

4:30 p. m., Euclid Room.

Promotion Comments

Mr. Lawrence W. Rember, Assistant to the General Manager, American Medical Association

Screening of "Here's Health"

(Louis de Rochemont's new documentary film.)

CONFERENCE BANQUET

6:30 p. m., Euclid Room.

Toastmaster: Dr. Louis H. Bauer, Hempstead, N. Y., Chairman, Board of Trustees, American Medical Association.

Introduction of Special Guests

Dr. Louis H. Bauer

Salute to County Societies

Dr. Elmer L. Henderson, Louisville, Ky., President, American Medical Association.

What the Community Expects of the Medical Profession

Mr. Louis B. Seltzer, Cleveland, Editor, Cleveland Press.

Monday, December 4

COUNTY SOCIETIES AND THE LEGISLATIVE SCENE

9:15 a. m., Euclid Room.

Chairman: Dr. Gunnar Gundersen, La Crosse, Wis., Chairman, Executive Committee, Board of Trustees, American Medical Association.

The Legislative Committee and You

Dr. Dwight H. Murray, Napa, Calif., Member, Board of Trustees, Chairman of Committee on Legislation, American Medical Association.

What's Ahead in Washington

Dr. Joseph S. Lawrence, Washington, D. C., Director, Washington Office, American Medical Association.

Questions and Discussion.

ACTIVITIES WITH A PURPOSE

10:00 a. m., Euclid Room.

Chairman: Mr. Rollen W. Waterson, Oakland, Calif., Executive Secretary, Alameda County Medical Society.

A Family Doctor for Every Family

Dr. Eugene A. Ockuly, Toledo, Ohio, President, Toledo Academy of Medicine.

Community Health Projects

Dr. Fred Sternagel, West Des Moines, Iowa, Chairman, Committee on Medical Service and Public Relations, Iowa State Medical Society.

PR Approach to Business Methods

Dr. E. L. Bernhart, Milwaukee, President, Medical Society of Milwaukee County.

Working with Other Health Professions

Dr. William M. Skipp, Youngstown, Ohio, Mahoning County Medical Society.

Promoting Voluntary Health Insurance

Dr. Carl F. Vohs, Clayton, Mo., President, Missouri Medical Service.

The Doctor and Civilian Defense

Dr. Frederic B. Davies, Scranton, Pa., Committee on Emergency Disaster Medical Service, Medical Society of State of Pennsylvania.

Questions and Discussion.

LUNCHEON

12:15 p. m., Grand Ballroom.

Toastmaster: Dr. F. F. Borzell, Philadelphia, Speaker, House of Delegates, American Medical Association.

What IS This American Way?

Mr. R. W. Mills, Fond du Lac, Wis., Executive Secretary, Fond du Lac Association of Commerce.

THE IDEA EXCHANGE

2:15 p. m., Euclid Room.

General Chairman: Dr. G. A. Woodhouse, Pleasant Hill, Ohio, Secretary-Treasurer, Miami County Medical Society. (After remarks of the general chairman, conferees will assemble in three groups to take up separate medical public relations problems of small, medium and large communities.)

Group 1: Medical Public Relations in a Small Community (Under 100,000)

Discussion Leader: Dr. G. A. Woodhouse.

Group 2: Medical Public Relations in a Medium-Sized Community (100,000-500,000)

Discussion Leader: Dr. John E. McDonald, Tulsa, Okla., Public Policy Committee Chairman, Oklahoma State Medical Society.

Group 3: Medical Public Relations in a Large Community (Over 500,000)

Discussion Leader: Dr. Arch Walls, Detroit, President-Elect, Wayne County Medical Society.

4:15 p. m., Euclid Room.

Report of Discussion Group Chairmen.

4:45 p. m., Adjournment of Conference.

GOVERNMENT SERVICES

Navy

Edward Rhodes Stitt Library

The medical library of the Naval Medical School at the Naval Medical Center, Bethesda, Md., has been renamed the Edward Rhodes Stitt Library in recognition of Admiral Stitt's distinguished service in the field of tropical medicine and as Surgeon General of the U. S. Navy from 1920 to 1928. The principal speakers at the ceremony were Rear Admiral Morton D. Willcutts, commanding officer, Naval Medical Center, and Capt. Bartholomew W. Hogan, commanding the Naval Medical School.

Guest Lecturers

Dr. Waltman Walters, chief of surgery, Mayo Clinic, Rochester, Minn., opened the current series of guest lectures at the Naval Medical School, Bethesda, Md., September 29, when he discussed "Surgery of the Stomach with an Evaluation of Vagotomy." Dr. A. R. Shands Jr., Wilmington, Del., was the guest lecturer at the Naval Medical School, Bethesda, Md., on October 27. His subject was "Some of the Problems of the Hip in Childhood." These meetings are open to members of the local medical societies and faculties of local medical schools, as well as medical officers of the Armed Forces, Public Health Service, Veterans Administration and Indian Affairs Bureau.

Deputy Director of Institute of Pathology

Capt. Arthur W. Eaton (MC, USN) has been appointed Deputy Director of the Armed Forces Institute of Pathology, Washington, D. C. Captain Eaton's entire medical career has been in the field of pathology, with the exception of three years during World War II, when he served in the Pacific Area with the 7th Fleet, the Amphibious Training Command and the Third Amphibious Force. He was an instructor in pathology at the U. S. Navy Medical School in 1937 and subsequently was pathologist on the hospital ship *USS Relief* and at several Navy hospitals.

Personal

Lieut. Col. Theodore M. Carow (MC), deputy chief of the Armed Services Medical Procurement Agency in Brooklyn, has been promoted to the rank of colonel. The 43 year old Army doctor is the youngest officer ever to occupy the deputy chief's position at the agency.

Capt. Charles W. Lane (MC, USNR) on October 16 became director of the Bureau of Medicine and Surgery's Naval Reserve Division. Captain Lane has been in the naval service for over 33 years, nearly 20 of which have been on active duty. He was in private medical practice in San Diego for 14 years.

Public Health Service

Examination for Scientists

A competitive examination for appointment of bacteriologists, entomologists, parasitologists and protozoologists to the Regular Corps of the United States Public Health Service will be held February 12-14, 1951 at points throughout the United States. Applications must be received no later than January 15, 1951. Appointments will be made in the grades of assistant scientist and assistant sanitarian (equivalent to Navy rank of lieutenant, j.g.) and senior assistant scientist and senior assistant sanitarian (equivalent to lieutenant). While consideration is given to the officer's preference, ability and experience, all commissioned officers are subject to change of station and assignment as necessitate the needs of the service. Appointments are permanent in nature and provide opportunities for qualified bacteriologists to pursue their profession as a life career in the research and public health activities. The names of applicants who successfully complete the examination will be placed on a merit roll, from which appointments will be made to fill current and future vacancies. Candidates must be United States citizens and at least 21 years of age. Application forms may be obtained from the Surgeon General, United States Public Health Service, Federal Security Agency, Washington 25, D. C., Attention: Division of Commissioned Officers.

Research on Diabetes and Personality

The National Institute of Mental Health of the Public Health Service has made a grant of $7,884 for a three year study on the psychodynamics of persons with potential diabetes mellitus to be conducted at the May Institute for Medical Research, Cincinnati, under the direction of Dr. I. Arthur Mirsky. The announcement by the Public Health Service states that prediabetics can often be identified through their medical histories, and recent studies indicate that a person in whom diabetes develops has a personality structure different from that of the nondiabetic. The study will cover the mental, emotional and physical makeup of a group of prediabetics before they actually become ill. The announcement further states that the study may reveal the conditions related to the development of diabetes and, "it is hoped," may eventually help in the discovery of preventive measures. This grant was one of 21 new mental health research grants approved by Surgeon General Leonard A. Scheele on recommendation of the National Advisory Mental Health Council, which, in addition to renewal of 44 earlier grants, makes a total of $855,740 approved for mental health research.

Latin American Fellows

Ten physicians, nurses and other health workers from Latin American countries are in the United States for one year of advanced training under programs supervised by the Division of International Health of the Public Health Service. Fellowships for the training are provided by the Educational Exchange Act. Among the trainees are:

Dr. Alexander G. Cevallos, chief of Maternal and Child Health Services of the Health Department, Province of Manabi, Ecuador; to study treatment and control of tuberculosis at the Herman Kiefer Hospital, Detroit.

Dr. Alcides L. Conti, head of the Dermatology and Syphilology Clinic, Policlinical Hospital, La Plata, Argentina; to study dermatology and syphilology at New York University.

Dr. Jose Horowitz, neuropsychiatrist, Santiago, Chile; to study mental hygiene and public health at Johns Hopkins University.

Dr. Simon Markovich, head of the Department of Neurophysiology, University of Chile, Santiago; to study neurophysiology at Columbia University.

Dr. Jose Manuel Ortega, surgeon at the Huipulco Municipal Hospital; to study thoracic surgery at Fort Sanders Hospital, Knoxville, Tenn.

Dr. Jose Sosa, professor of bacteriology and immunology, National School of Biological Sciences, Mexico City; to study virus diseases and public health at the University of California, Berkeley.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Jacob Gimbel Lectures.—Dr. Manfred S. Guttmacher, chief medical officer, Supreme Bench of Baltimore, delivered the Jacob Gimbel lectures under the auspices of Stanford University and the University of California November 27-December 1 at the Stanford University School of Medicine, Berkeley-San Francisco. The subject of this year's lectures was sexual offenses. Dr. Guttmacher spoke on the clinical aspects and treatment, medical and legal. He also spoke at both Stanford University and the University of California November 28-30 on the sexual offender.

Chronic Disease Program.—After two years of study by a committee organized by the Social Planning Committee of the Community Chest, funds have been secured from a private source and a director appointed to take the first steps in the pooling of resources to meet the needs of the chronically ill of San Francisco. Information will be made available through meetings, brochures and reports, and research information and occupational therapy, rehabilitation and home care programs will be planned. A sound working relation will be developed with physicians, hospitals, nursing organizations and nursing homes, the health departments and educational and civic groups. The Community Chest will serve as a disbursing agent and provide some services. Mrs. Helene M. Lipscomb, who has had experience with community services in California and eastern cities, is the director. Her office is at 2015 Steiner Street in the Community Chest Building. The telephone number is Walnut 1-7032.

COLORADO

Survey of Arkansas River Basin.—A survey to determine the extent and cause of pollution of the Arkansas River Basin was begun in October to bring up to date previously collected information and to publicize the need for treatment of domestic and industrial wastes. The study is a cooperative program of the Colorado State Department of Game and Fish and the State Department of Public Health. Temporary laboratory facilities will be arranged in Salida, Pueblo, La Junta, Trinidad, as well as in established laboratories in Denver, to conduct tests of samples of water taken the entire length of the river and its principal tributaries. Samples will be taken above each town, at the point of sewage outfall, at the point of induction of any industrial waste and below the town. Samples will be taken over a period of several months to obtain a true picture of the extent of stream pollution in the area of each community and industry.

ILLINOIS

Chairman of Cancer Society Committee.—Dr. Walter G. Maddock, Chicago, Elcock professor of surgery at Northwestern University Medical School, has been elected chairman of the Medical and Scientific Committee of the Illinois Division, American Cancer Society, Inc., for 1950-1951. The committee, composed of 52 Illinois physicians and scientists, is responsible for the division's medical and scientific policy, including research, education and service. It reviews all professional activities and projects and recommends appropriations to the executive committee of the society. Dr Maddock also represents Northwestern University Medical School on the division's Professional Education Committee, which conducts cancer refresher courses with the cooperation of the medical schools of the universities of Chicago, Illinois and Loyola.

Chicago

Furniture Dealers Aid Cancer Research.—The Albert G. Joseph Cancer Research Foundation has presented a check for $25,000 to help support cancer research at the University of Chicago. The gift was presented at a dinner at the Stevens Hotel November 14. Speakers included Dr. Lowell T. Coggeshall, dean of the university's division of biological sciences, and Dr. James W. J. Carpender, assistant professor of radiology. The foundation, organized in memory of Albert G. Joseph, active in the furniture business in Chicago from 1911 until his recent death from cancer, is supported by contributions from more than 500 retail furniture men and dealers in allied businesses.

Grant Hospital Affiliates with University.—An affiliation has been arranged between Grant Hospital and the University of Illinois College of Medicine for the purpose of stimulating clinical teaching and organized research programs at both institutions. Members of the present staff at Grant Hospital will continue in their present capacities and new appointments will be correlated by the university and the hospital. The board of directors of Grant Hospital will retain all of its present authority over the administrative, physical and professional aspects of the hospital. The university will have representation on the board. The hospital has 236 beds for adult patients plus 45 bassinets. Grant also operates an outpatient clinic, which had 17,720 patient visits during 1949. Of that number, 10,296 visits were handled at no cost to the patient.

KENTUCKY

Research on Childhood Infections.—A virus research laboratory which will concentrate on childhood infections has been established at the University of Louisville School of Medicine. Its completion was effected by a grant from the recently organized Kentucky Child Health Foundation. The investigations will be supervised by Dr. Alexander J. Steigman and James G. Shaffer, Sc.D., of the school's child health and bacteriology departments.

Dr. Bortz Addresses Dinner Meeting.—At the monthly dinner meeting of the Jefferson County Medical Society in Louisville November 20, the guest speaker was Dr. Edward L. Bortz, associate professor of medicine, Graduate School of Medicine, University of Pennsylvania, Philadelphia, and Past President of the American Medical Association, whose subject was "Diabetes Today and Tomorrow." The address was sponsored by the Louisville Society of Physicians and Surgeons.

Crippled Children Society.—The annual meeting of the Kentucky Society for Crippled Children was held in Lexington November 10. At the morning session reports were given of projects initiated by the society. Lawrence J. Linck, executive director, National Society for Crippled Children and Adults, Inc., Chicago, addressed the luncheon meeting. At 2:30 p. m. the Honorable Earle C. Clements, governor of Kentucky, and other distinguished persons were guests of the society at the dedication of the new convalescent home one mile from Lexington.

MARYLAND

Personals.—Dr. Robert E. Bauer has been named medical director of the Sharp & Dohme Blood Donor Center in Baltimore. He has recently been a resident at University Hospital in Baltimore.

Society News.—The Maryland Society of Pathologists elected the following officers for the ensuing year: Dr. Harold L. Stewart, Bethesda, president; Dr. Carroll G. Warner, Baltimore, vice president, and Dr. Russell S. Fisher, Baltimore, secretary-treasurer.——Dr. John K. Lattimer, New York, addressed the fall meeting of the Urological Section of the Medical and Chirurgical Faculty of Maryland October 19 in Baltimore, on "Tuberculosis of the Urogenital Tract."

Dr. Ivy Delivers Friedenwald Memorial Lecture.—Dr. Andrew C. Ivy of the University of Illinois gave the fifth annual Dr. Julius Friedenwald Memorial Lecture on November 2 at the University of Maryland School of Medicine, Baltimore, on "Physiological Basis of the Psychosomatic Aspects of Peptic Ulcer." This lectureship was established at the university in 1941 in honor of Dr. Friedenwald, formerly professor of gastroenterology.

MASSACHUSETTS

New Division of Alcoholism.—An attack on the problem of the state's chronic alcoholics was launched November 16 with creation of a new Division of Alcoholism in the State Department of Public Health. On the same day the first of two clinics for rehabilitating alcoholics was opened under department sponsorship at the Peter Bent Brigham Hospital, Boston, and at the Quincy City Hospital. Director of the new division will be Dr. John C. Ayres of Brighton, at present assistant director of the department's Division of Communicable Diseases. The new division's attack is aimed at (1) diagnosis, treatment and rehabilitation of persons addicted to the excessive use of alcohol, (2) prevention and education and (3) research in the medical and public health aspects of chronic alcoholism. The division will operate with a limited budget of $40,000 to cover costs until June 30, 1951. The division is expected to work in conjunction with other agencies, such as Alcoholics Anonymous, committees for education on alcoholism, church and other groups. The state's alcoholism rate ranks fifth in the nation. Dr. Vlado A. Getting, state health commissioner, declared that the cost to governmental agencies for incarceration of problem drinkers and care of their families is estimated by the legislative Commission on Alcoholism at $61,000,000 annually. In setting up the Division of Alcoholism, Massachusetts is following the lead of Virginia, New Jersey and Pennsylvania in treating alcoholism as a part of its general public health program. Governor Dever signed the bill providing for the state program on August 17.

MICHIGAN

Prenatal Clinic.—A clinic to provide antepartum care and home delivery for the medically indigent has been set up in Oakdale Gardens, an area where the death rate at birth is highest in Oakland County. It will serve about 15,000 persons and will be educational as well as medical, providing instruction for *prospective mothers on how to care for themselves and their* children. Located in Oakdale Community Center, the clinic will be open from 1:00 to 2:00 p. m. on Tuesdays and at additional times as the project becomes better known. Cooperating groups, brought together through the Council of Social Agencies, are furnishing funds and personnel. These groups include Family Service of Oakland County, Visiting Nurses, Federal Housing Authority, Oakland County Social Welfare Board, the state and county health departments and the U. S. Children's Bureau in Washington.

NEW MEXICO

Lovelace Foundation Clinic Dedicated.—Dedication ceremonies for the Lovelace Foundation's million dollar clinic building were held November 4 at Albuquerque. The state governor, both senators and more than 1,000 others attended. Among the speakers were Dr. Ward Darley Jr., dean, University of Colorado School of Medicine, Denver; Dr. Charles W. Mayo, Rochester, Minn.; Dr. George F. Lull, Secretary and General Manager, American Medical Association, Chicago; Senators Clinton Anderson and Denis Chavez, and Mr. Floyd Odlum, chairman, board of directors of the foundation. Open house was held at the new building after the dedication. Ground-breaking ceremonies for the 110 bed Bataan Memorial Hospital being built by the Methodist Church on ground adjoining the clinic also were held. The clinic is situated north of the Veteran's Administration Hospital, which is now completing a $3,200,000 addition that will bring its capacity to 591 beds. Members of the clinic staff act as consultants at the veterans hospital.

Construction of the four story building began in June 1949. Trans World Airlines has furnished a laboratory for respiratory and circulatory studies of pilots. The library contains more than 5,000 volumes as well as 250 medical and surgical journals. The Lovelace Clinic was founded in 1922. In 1947 it turned over its entire assets plus its future net income to the Lovelace Foundation for Medical Education and Research.

NEW YORK

Dr. Seed Promoted at Research Institute.—Dr. John C. Seed, formerly with the Army Chemical Center in Edgewood, Md., has been appointed executive assistant to Dr. Maurice L. Tainter, director of the Sterling Winthrop Research Institute, Rensselaer. Dr. Seed's duties include liaison between the institute and the medical profession. He interned at the Massachusetts General Hospital until entering the Army in April 1946. There he supervised and conducted research at the Army Chemical Center. On release from the service he continued similar duties as a civilian employee until his arrival at the institute.

Rochester Academy Anniversary.—The Rochester Academy of Medicine celebrated its fiftieth anniversary at a dinner at the Oak Hill Country Club in October. The speaker was Dr. George W. Corner, director, department of embryology, Carnegie Institute in Baltimore, who spoke on medical education and practice in the days of Benjamin Rush. Supplementing the program was a portrait exhibit by the Museum Committee in the foyer of the club. Included were large photographs of three doctors who formed the academy, William S. Ely, John O. Roe and Edward B. Angell, as well as a portrait of another founder, Dr. Louis A. Weigel, an early worker in the field of roentgen therapy.

Stockpile Medical Supplies.—A $500,000 emergency appropriation for the stockpiling of medical supplies and equipment for use in the event of enemy attack has been approved for use of the State Civil Defense Commission. The appropriation is expected to "stimulate the production of essential supplies," which will be primarily drugs and antibiotics. They are to be stored in strategically located state institutions. The state will purchase also surgical kits, blood transfusion sets, fracture supplies, burn treatment supplies, syringes and needles. The State Department of Health and the Civil Defense Commission will order and arrange for storage of the material. Staffs are now being trained for its use.

New York City

Hospital News.—Construction of several new units for Mount Sinai Hospital was announced in November with the letting of a contract totaling approximately $6,000,000. The buildings include the Berg Institute of Research, a maternity pavilion, a laboratory building and a new x-ray department, as well as alterations and additions to the existing hospital.

Named to Cancer Institute Board.—Detlev W. Bronk, Ph.D., president of Johns Hopkins University, Baltimore, and Rear Admiral Lewis L. Strauss, Washington, D. C., have been elected to the board of trustees of Sloan-Kettering Institute for Cancer Research. Dr. Bronk is president of the National *Academy of Sciences, member of scientific directors of the* Rockefeller Institute for Medical Research and serves on the committee of biology and medicine of the Atomic Energy Commission. Admiral Strauss, until recently a member of the Atomic Energy Commission, is president of the Institute for Advanced Study in Princeton and a member of the Naval Research Advisory Committee and the board of managers of Memorial Center for Cancer and Allied Diseases.

Postgraduate Radio Programs.—The sixth of the New York Academy of Medicine's FM radio broadcasts "For Doctors Only" will be initiated on December 7 at 9:00 p. m. over station WNYC-FM with an address by Dr. Cyril N. H. Long, dean, Yale University School of Medicine, New Haven, Conn., on "Pituitary-Adrenal Relationship." Other scheduled programs are as follows:

Dec. 14, Alexander B. Gutman, New York, Gout.
Dec. 21, Robert H. Kennedy, New York, Chairman, Roundtable: Sport Injuries.
Dec. 28, Joseph J. Bunim, Brooklyn, Clinical Effects of Cortisone and ACTH in Rheumatic Diseases.
Jan. 4, Charles A. Ragan, New York, Rheumatoid Arthritis: The Natural History of the Disease and Its Management.

The response to the broadcasts has been widespread and enthusiastic.

Medical Aspects of Compensation.—A course under this title is being presented by New York University-Bellevue Medical Center in collaboration with the American Academy of Compensation Medicine December 4-9 at Erdmann Auditorium from 1:00 to 4:00 p. m. and 7:00 to 10:00 p. m. The tuition is $25. The roundtables and their moderators are as follows:

Peripheral Vascular Problems in Compensation Medicine, A. Wilbur Duryee.
The Heart and Compensation Medicine, Cary Eggleston.
Radiology in Relation to Compensation Medicine, A. L. Loomis Bell.
Surgery in Relation to Compensation Medicine, Harry V. Spaulding and Francis B. Berry.
Gastrointestinal Diseases, Z. Taylor Bercovitz.
Genitourinary Diseases in Relation to Compensation Medicine, Robert W. Hunt.
Rehabilitation, Howard A. Rusk.
Occupational Diseases, Paul Reznikoff.
Problems in Practical Applications of Radiation and Radioactive Materials, Bernard S. Wolf.
Ophthalmology in Compensation Medicine, Conrad Berens.

Tuberculosis High in Manhattan.—The borough of Manhattan leads the city in tuberculosis mortality. The New York Tuberculosis and Health Association reports that during the first six months of 1950 about half (610) of the 1,264 deaths from tuberculosis in New York City were of residents of Manhattan. Of the 4,226 new cases of tuberculosis registered in the city during this period, 2,075 were in residents of Manhattan. In relation to the population of the various boroughs as just enumerated by the Census Bureau, the registration of new cases of tuberculosis in the City of New York during the first half of 1950 averaged 107.7 per 100,000 population. The average for Manhattan was 213.9. The cost of maintenance and care for victims of the disease in New York City is more than $34,000,000 a year. This figure ignores expenditures for relief and loss of wages by the adults who have been stricken. It also makes no allowance for the contributions made by a large number of physicians, especially tuberculosis specialists, who give their services free for the care particularly of patients in public institutions.

PENNSYLVANIA

Medical Careers Conference.—A total of 442 high school students attended a Medical Careers Conference at St. Vincent's Hospital, Erie, sponsored by the Erie County Medical Society November 8. Officers of the society outlined the purpose of the conference. Nursing was the subject attracting the largest number of students. A possible career in medicine inspired the attendance of the second largest group. Dr. Joseph M. Walsh, Erie, chairman of the medical society committee which arranged the conference, declared the unexpected enthusiasm of the high school students illustrates the usefulness of having other similar conferences.

Philadelphia

Dr. Bennett Becomes Dean at Jefferson.—Dr. William H. Perkins has resigned as dean of Jefferson Medical College because of his health. He will continue his position as professor of preventive medicine and head of the department. Dr. George A. Bennett, professor of anatomy, head of the department and director of the Daniel Baugh Institute of Anatomy, has been given additional duties as dean of the college. He has been a member of the faculty for 11 years. He was professor of anatomy and acting head of the department of anatomy at Georgetown University prior to joining the faculty of Jefferson.

Pittsburgh

Dr. Hamor to Receive Award.—William A. Hamor, LL.D., assistant director of Mellon Institute, has been named by the Pittsburgh Section of the American Chemical Society to receive its Pittsburgh Award for 1950. The award will be presented at a dinner in the University Club of Pittsburgh on December 21. Dr. Hamor has served on several governmental agencies and is a member of the Research Advisory Council of the Industrial Hygiene Foundation of America.

SOUTH DAKOTA

University News.—Dr. Ralph L. Ferguson, head, department of pathology, University of South Dakota School of Medical Sciences, Vermillion, resigned, effective November 1, to go into private hospital work in pathology in Joplin, Mo. Dr. Ferguson came to the university in 1945.

TEXAS

McReynolds Lecture in Ophthalmology.—The annual John O. McReynolds Lecture in Ophthalmology was given by Dr. Arlington C. Krause of the University of Chicago at the University of Texas Medical Branch, Galveston, November 6. Dr. Krause discussed some of his recent experimental studies on eye injury.

Rheumatism Association Meeting.—Dr. Richard H. Freyberg, associate professor of clinical medicine at Cornell University Medical School, New York, will be the honor guest at the Texas Rheumatism Association at the Shamrock Hotel, Houston, December 8. He will speak on "Practical Considerations in the Use of ACTH and Cortisone in Rheumatic Disease."

Committee on Skin Regeneration.—A special committee on skin metabolism and regeneration has been established at the University of Texas Medical Branch, Galveston, to correlate studies in these fields with particular reference to the management of burns and radiation injury. The chairman of the committee is Dr. Clarence S. Livingood, professor of dermatology and syphilology. The members of the committee include Dr. Truman G. Blocker Jr., professor of plastic and maxillofacial surgery; Charles M. Pomerat, Ph.D., director of the Tissue Culture Laboratory; Kenneth McConnell, Ph.D., director of the laboratory of medical physics, and Dr. Arild E. Hansen, professor of pediatrics.

VIRGINIA

Children's Service Center Moves.—The Children's Service Center, established in 1948 at the University of Virginia Department of Medicine, Charlottesville, as a child guidance clinic under the direction of Dr. Frank J. Curran, associate professor of neurology and psychiatry, has moved from the University of Virginia Hospital to larger quarters in the neighborhood. The center has a staff of 10.

WISCONSIN

Shortage of Animals for Research.—The regents of the University of Wisconsin November 11 took action to overcome the "unnecessary shortage" of dogs for teaching and research. They requested the state attorney general to take action to obtain compliance with the state law requiring that humane societies turn over stray dogs to the medical schools at the University of Wisconsin and Marquette University. Dr. Harold M. Coon of State of Wisconsin General Hospital said that material for third-year medical students taking surgery is not available to meet ordinary teaching needs. "The question is," he continued, "shall the laws of the state of Wisconsin be flouted by a small number of antimedical people and thereby hinder the teaching of medical students and the training of doctors for which there presently is a great need."

Memorial Lecture on Allergy.—Alpha Omega Alpha of the University of Wisconsin Medical School, Madison, will present a lecture in honor of the late Dr. William A. Mowry in the auditorium of Service Memorial Institutes at 8:00 p. m. December 7. Dr. Carl A. Dragstedt, professor of pharmacology at Northwestern University Medical School, Chicago, will speak on, "A Pharmacologist Looks at Allergy."

CANAL ZONE

Society News.—At the October meeting of the Medical Association of the Isthmian Canal Zone at Colon Hospital, Cristobal, the staff of Colon Hospital presented the scientific program. Dr. W. W. Jackson spoke on "Metal Fumes Fever." A paper prepared by Dr. Frank E. Riefkohl on "Infantile Scurvy on the Isthmus of Panama" was read, as was a paper by Dr. Pickney on "Differential Diagnosis of Splenomegaly."

GENERAL

Southern Surgical Association.—This association will hold its annual meeting at the Hollywood Beach Hotel, Hollywood, Fla., December 5-7, under the presidency of Dr. George V. Brindley, Temple, Texas. A series of 40 papers will be presented.

Southern Psychiatric Association.—This association held its annual meeting November 27-28 at the Williamsburg Inn, Williamsburg, Va., under the presidency of Dr. R. Finley Gayle Jr., Richmond, Va. Guest speakers included Dr. Trevo C. N. Gibbens, Institute of Psychiatry, London University, England, who spoke on "Notes on Psychiatrists' Attitudes," and Dr. Patrick H. Tooley, University of London, England, visiting professor of psychiatry, Bowman Gray School of Medicine, Winston-Salem, N. C.

Board of Ophthalmology Examinations.—Candidates for the certificate of the American Board of Ophthalmology are accepted for examination on the evidence of a written qualifying test held annually, in January, in various parts of the United States. Applications for the 1952 written test must be filed before July 1. Ninety-eight examinations have been held to date. Certificates issued total 3,143. The 1951 examinations will be held in San Francisco March 11-16, in New York May 31-June 5 and in Chicago October 8-13. Dr. John H. Dunnington, New York, is chairman of the board and Edwin B. Dunphy, Boston, is secretary-treasurer. The executive offices are at 56 Ivie Road, Cape Cottage, Maine.

Nutrition Foundation.—At its annual meeting November 16 at the Waldorf-Astoria Hotel in New York, the Nutrition Foundation, Inc., made grants-in-aid for research totaling $129,850. Contributions to the foundation, supported by 56 food manufacturers and related industries, total $350,000 annually. Contributions since 1942 when it was organized have amounted to over $4,000,000. The foundation is presently supporting basic research concerning the relation of food to anemia, bone formation, cancer, dental caries, diabetes, heart and vascular diseases such as hardening of the arteries, high blood pressure, glandular functions and infant health. Eight renewals of grants-in-aid and a like number of new applications were approved.

Dr. MacEachern Retires from College of Surgeons.—Officers, regents and the administrative staff of the American College of Surgeons held a dinner in Chicago November 19 in honor of Dr. Malcolm T. MacEachern, director emeritus of the college, on the occasion of his retirement. Dr. MacEachern began his service with the American College of Surgeons in August 1923 as director of hospital activities. From 1935 to 1949 he was associate director and chairman of the administrative board. In 1949 he was appointed director. In March 1950 he assumed his present title of director emeritus, and was succeeded as director by Dr. Paul R. Hawley. He remained in charge of the hospital activities of the college until the end of October. Dr. MacEachern will continue his duties as professor and director of Northwestern University's program in hospital administration, which he established in 1943. He is considering other activities. Among other honors, Dr. MacEachern received in 1939 the Award of Merit of the American Hospital Association; in 1948 the Gold Key of the Tri-State Hospital Assembly; in 1949 a Gold Key, diamond set, from the Association of Western Hospitals; in March 1950 the Winnipeg City Crest, and in October 1950 a citation from the New England Hospital Assembly and the Massachusetts Hospital Association for his 27 years of service to hospitals.

Fellowship Committee of Medical Association of Israel—A group of American physicians, whose purpose is to strengthen the relation between Israelian and American medicine and to maintain the dignity and prestige of the physicians in Israel, has nearly 700 members and has been named the American Physicians Fellowship Committee of the Medical Association of Israel The Israel Medical Association which comprises 97 per cent of all physicians in Israel, is backing this organization Members of this organization automatically become nonresident fellows of the Israel Medical Association and receive the medical quarterly of the Israel Medical Association, *Harefuah,* as well as an engraved membership diploma and card The dues are $10 yearly Applications will be received at 273 Main Street Nashua, N H The officers of the committee are Dr Morton J Robbins, Nashua N H, president, Dr Julius M Rogoff, Pittsburgh, honorary president, Dr Manuel M Glazier, Boston, secretary, and Dr Leon B Schwartz Bronx, N Y, treasurer

Mid-South Meeting of College of Physicians—A regional meeting of the American College of Physicians including Louisiana, Texas, Tennessee and, by invitation, Alabama, Arkansas and Mississippi will be held at the Peabody Hotel Memphis, Tenn, January 12-13 beginning at 1 30 p m Invited speakers include

Lemuel W Diggs Memphis, Tenn, The New Nomenclature for Blood Cells
Arthur C Guyton, University, Miss, Studies on Controlled Acute Cardiac Failure
Charles H Burnett, Dallas, Texas, Adrenal Pituitary Relationships in Renal Function

Other guests will be Dr G Morris Piersol, secretary general and a past president of the college, Dr James E Paullin Atlanta, Ga, a past president, Mr E R Loveland, executive secretary, Philadelphia, and Col Jack Major, Paducah, Ky At the informal banquet Friday at 7 00 p m Dr William S Middleton, Madison, Wis, president of the college and head of the department of medicine, University of Wisconsin will speak

Broadcast Programs on Democracy in Action—The story of people in a remote mountain valley in Bat Cave, N C, and of young Dr George Bond will be the first of 13 radio programs in a new radio series over the NBC network on Saturday evenings, 7.00-7 30 p m Eastern Standard Time, beginning December 9 The episodes in this series tell the real life stories of how people in various communities in the United States, using democratic methods, acted together to solve their economic and social problems It is produced jointly by the Twentieth Century Fund and the National Broadcasting Company. Other programs in the series deal with democracy in action in the fields of education, labor-management relations, housing, soil conservation and world trade The program employs the recording of on-the-scene voices of the actual persons who lived the story

Environmental Cancer Detection Unit.—A research program aimed to detect materials in everyday life which might be the cause of cancer is being conducted by a Cancer Prevention Committee with international membership and headquarters at the Institute of Industrial Medicine of the New York University-Bellevue Medical Center Announcement of the program was made at a meeting of the Fifth International Cancer Congress in Paris in August The purpose of the committee is to translate laboratory findings concerning environmental causes of cancer into practical application for everyday life in order to prevent persons from coming into contact with agents causing the disease, according to Dr William E Smith, chairman of the committee and a staff member of the Medical Center's Institute of Industrial Medicine The committee includes representatives of university research programs, manufacturers, industrial physicians, engineers industrial and governmental hygienists and statisticians Data concerning certain types of cancer producing materials have already been developed and have been passed on to the industries directly concerned The large insurance companies were particularly cooperative in developing data concerning special cancer hazards

Society Elections—The following officers were elected at the recent meeting of the Association of State and Territorial Health Officers for the fiscal year 1950-1951 Dr Roy L Cleere, Denver, Colorado, president, Dr Leroy E Burney, Indianapolis, vice president, and Dr John D Porterfield III, Columbus, Ohio, secretary-treasurer——The following doctors were elected for the forthcoming year at the November meeting of the American Society of Anesthesiologists, Inc Dr Urban H Eversole, Boston, president, Dr C Walter Metz, Denver, president-elect, Dr J Earl Remlinger Jr, Evanston, Ill, secretary, and Dr. Moses H Krakow, Bronx, N Y, treasurer——At the annual meeting of the National Malaria Society in Savannah, Ga, November 6-10, the following officers were elected for 1951 Justin M Andrews, Sc D, Atlanta, Ga, president, Mr W H W Kimp, Bethesda, Md, president elect Dr Eugene L Bishop, Chattanooga, Tenn, vice president, Samuel W Simmons, Ph D, Savannah, Ga, secretary-treasurer, and George R Coatney, Ph D, Bethesda, Md, editor——At the annual meeting in September of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons Dr James K Quigley, Rochester, N Y, was named president Dr Leroy A Calkins of Kansas City, Kan, is president elect, Dr Herbert E Schmitz, Chicago, vice president, Dr William F Mengert, Dallas, Texas, secretary, and Dr Ward F Seeley of Detroit, treasurer

U. S.-Canadian Allergy Map.—As part of an investigation of allergy, 38 U S and Canadian doctors have completed an allergy map of the two countries, locating the areas of heavy mold spore concentrations Dr Leonard H Harris, Peoria, Ill, headed the committee of the American Academy of Allergy According to the report by this committee, the investigators found two molds, Alternaria and Hormondendrum, in greatest abundance in the Great Plains of the United States, less in the Eastern states and least in the South and Southwest These molds grow in great profusion on wheat, oats, hay and corn Large concentrations of Alternaria, a common cause of some kinds of hay fever and asthma, were found in Chicago, Evanston and Peoria, Ill, Madison, Wis, Indianapolis, Des Moines, Iowa, Oklahoma City, and Ann Arbor, Mich Cities with the lowest Alternaria counts are San Diego and Oakland, Calif, Tucson, Ariz, and Miami Beach, Fla Investigators in the United States and Canadian cities collected daily samples of air-borne molds by dish and glass slide technics Members of the survey committee included Dr Harris, Dr Samuel F Feinberg, Chicago, Dr Theodore B Bernstein, Chicago, Oren C Durham, Ph D, Waukegan, Ill, and Joseph C Gilman, Ph D, Iowa City

National Nursing Improvement Program.—The W K Kellogg Foundation of Battle Creek, Mich, has granted $200,000 to finance a nationwide effort to improve nursing service in hospitals and health agencies during the next three years, under a program being developed by the National Committee for the Improvement of Nursing Services The national committee, with headquarters in New York, will develop plans to help nursing gear its education and service to meet the changing health needs of the nation Factors creating expanded nursing service demands are (1) the changing mode of life from rural to urban, (2) increased use of hospital facilities due to better economy and rapid growth of health insurance plans, (3) expansion of public health programs, (4) increase in employment of nurses in industry, (5) increase in nurses working in doctors' offices, (6) greater participation of nurses in research, (7) delegation to nurses of functions previously carried by doctors and (8) unstable quality and quantity of practical nurses and auxiliary workers

The committee is sponsored by the six national nursing organizations The Joint Commission for the Improvement of the Care of the Patient will serve as an interprofessional advisory committee Committees have been organized in 28 states and two territories The committee has already completed the first step in its program, a nationwide survey of the educational practices in schools of nursing

Medical Television Wins Award—The American Public Relations Association has presented Smith, Kline & French Laboratories Philadelphia, its top award for the year's outstanding public relations project in the use of graphic arts This Silver Anvil Award was given for the firm's project of transmitting surgical and medical procedures to medical meetings throughout the country, using color television Color television was tested in May 1949 at the University of Pennsylvania, Philadelphia This equipment made its debut at the annual session of the American Medical Association in Atlantic City last June In the following year of demonstrations the firm took the equipment 14,000 miles to 11 medical conventions, colorcasting 300 surgical operations and medical clinics to more than 100 000 physicians Included was the first intercity medical colorcast last December during the A M A 's clinical session in Washington, D C, when the program was colorcast from the Johns Hopkins Hospital in Baltimore Other cities visited were Denver, Chicago, New York, Atlanta, St Louis, Boston, Fort Worth and San Francisco, with programs presented to the American College of Surgeons, American Cancer Society, state medical societies of Colorado, Missouri and Texas, the Chicago Medical Society, the Atlanta Graduate Medical Assembly and this year's A M A annual session In the second year of these programs the firm has presented color television to the District of Columbia medical society, Pennsylvania medical society, American College of Surgeons and the International College of Surgeons On the agenda are 13 other meetings

CANADA

Hospital News.—St. Joseph's Hospital, in Montreal, which has been completed at a cost of $5,000,000, will accommodate more than 600 patients. There are a number of special research laboratories and six operating rooms. Two years were required to build the six floor fire-proof hospital.

Mickle Fellowship Awarded.—The 1950 Charles Mickle Fellowship, which is awarded annually by the University of Toronto to "the member of the medical profession who has done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science," has been awarded to Dr. Selman A. Waksman, department of microbiology, Rutgers University, New Brunswick, N. J. The fellowship is accompanied with a cash award of $800, which Dr. Waksman said he will use to further his research in microbiology.

New Medical School Opens in Vancouver.—The Faculty of Medicine, University of British Columbia, commenced its first year of instruction on September 7. The preclinical departments are housed in temporary quarters and clinical teaching will be given at the Vancouver General Hospital and other local hospitals. Instruction during the first year is being offered in anatomy, histology, biochemistry, physiology, history of medical progress, human behavior. introduction to medicine and introduction to public health. Of some 300 applicants, 60 were admitted. Though the minimum academic requirment is three years of college credits after junior matriculation, 52 students have their bachelor's degrees. All but three are residents of the Province of British Columbia. Dr. Myron M. Weaver, dean of the faculty, was formerly assistant dean of the medical sciences, University of Minnesota.

FOREIGN

Mecca Pilgrimage Free of Epidemics.—As a result of international medical and sanitary measures promoted by the World Health Organization (THE JOURNAL, June 17, page 656), the Mecca Pilgrimage of 1950 (Year of the Hegira 1369) was declared "free from infection" and thus cleared of the traditional danger of outbreaks of disease among pilgrims. The Public Health Department of Saudi Arabia has cabled WHO that out of the 500,000 travelers to Mecca, fewer than 120 deaths were recorded. These were caused by sunstroke and general debility of old age; no case of epidemic disease was ascertained.

Maternal and Child Health Center in India.—The World Health Organization and the Indian health services have cooperated in setting up a field center for maternal and child health in a rural area of Delhi Province in India. This project is being enlarged to form an over-all teaching and training project for medical students, nurses and social workers, with courses in Delhi hospitals and colleges also Additional centers in Afghanistan and Burma and other parts of Southeast Asia will help in the improvement of the health of mothers and children and particularly in lowering the infant death rate.

Anti-Rabies Mass Vaccination of Dogs on Mexican Border.—The entire dog population of Ciudad Juarez, Mexico, was recently vaccinated as one of a series of measures to stamp out rabies along the Mexico border. The vaccination of the city's 3,500 dogs was a pilot project conducted by the Mexican health authorities, with the cooperation of the Pan American Sanitary Bureau, Regional Office of the World Health Organization, and will serve as a model for mass vaccination operations in other towns along the border. Aurelio Malaga-Alba, D.V.M., Peru, is coordinator of the rabies eradication program. The National Institute of Hygiene of Mexico City furnished the vaccine, and the equipment and instruments were supplied by the Pan American Sanitary Bureau Public response was prompt. A single veterinarian was able to vaccinate 400 dogs a day, and the entire operation, including humane disposal of all unclaimed dogs that were rounded up in the streets, was completed within eight days. It was reported that last year 179 persons in that city alone received anti-rabies treatment and that from January to September 1950 more than 300 persons had been bitten.

The Pan American Sanitary Bureau was designated in April of 1949 as the coordinating agency for an intensive program of rabies eradication along the U. S.-Mexico border. To standardize the diagnostic procedure throughout Mexico, four laboratory courses were given in Mexico City, which were attended by one hundred physicians, laboratory technicians, veterinarians and bacteriologists. A small group of Mexican scientists came to the U. S. Public Health Laboratories in Atlanta, Ga., to make special studies in rabies diagnosis.

CORRECTION

Costs of Hospitalized Illness.—In the article "Costs of Hospitalized Acute Illness," by Theodore Wiprud and Isidore Altman (Nov. 4, 1950), line 7, second column, page 838, should read "of the hospital bill that Group Hospitalization subscribers."

Fourth General Assembly of World Medical Association.—In the account of the Social Events listed on page 1011 of THE JOURNAL of November 18, the name of E. R. Squibb & Sons was inadvertently omitted from the list of those sponsoring luncheons for the World Medical Association.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* July 20. Given simultaneously in several cities in the United States Final date for filing application is Jan. 20 *Oral.* Coronado, Calif., April 4-7 and Memphis, Oct. 14-17. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral, including subspecialties,* Dec. 7-9. Executive Secretary-Treasurer, Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May 1951. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Part I, Written Examination and Review of Case Histories. Various locations Feb 2, 1951. Final date for filing applications was Nov. 5. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, Pa.

AMERICAN BOARD OF OPHTHALMOLOGY *Written* Various Centers, Jan 5-6, 1951 *Oral.* San Francisco, March 11-15; New York, May 31-June 5; Chicago, October 8-13. Sec, Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, Jan 25-26. Final date for filing applications was Aug 15, 1950. Final date for receipt of Part I applications for 1951 is Dec. 30, 1950. Sec., Dr. Harold A. Sofield, 122 So Michigan Ave, Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Written.* New York, Jan 8-11, 1951. *Oral.* Richmond, Va., May 1-5. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Written.* Jan. 19. Under local monitors. Only written examination to be given during 1951. *Oral* New Orleans, March 2-4. Ex. Sec., Dr. John McK Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PROCTOLOGY: *Part I in Anorectal Surgery and Proctology.* Dallas, Minneapolis, Philadelphia and San Francisco, May 12. Sec.-Gen., Dr. Louis A. Buie, 102-110 Second Ave, S W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY. New York. Dec 18-19 Final date for filing applications was Sept 1 Sec, Dr Francis J Braceland, 102-110 Second Ave., S W., Rochester, Minn

AMERICAN BOARD OF RADIOLOGY. *Oral* Atlantic City, June 5-9. Sec., Dr. B. R Kirklin, 102 110 Second Ave., S.W., Rochester, Minn

AMERICAN BOARD OF SURGERY: *Written* Various centers, March 1951. Final date for filing applications was Dec. 1, 1950 *Written.* Various centers, Oct. 1951. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, Feb 10 14, 1951 Final date for filing applications was Sept. 1, 1950. Chicago, Feb 9 13, 1952. Final date for filing applications is Sept 1. Sec., Dr. Harry Culver, 314 Corn Exchange Bldg, Minneapolis 15.

Coming Medical Meetings

American Medical Association, Clinical Session, Cleveland, Dec. 5-8. Dr. George F. Lull, 535 N. Dearborn St, Chicago 10, Secretary.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 2-7. Dr. John E. Rauschkolb, P. O. Box 6565, Cleveland, Secretary.

American Association of Medical Clinics, Hotel Cleveland, Cleveland, Dec. 4. Dr. Arthur H. Griep, Welborn Clinic, Evansville, Ind, Secretary.

American Psychoanalytic Association, Waldorf-Astoria Hotel, New York, Dec. 7-10. Dr. LeRoy M. A. Maeder, 1910 Rittenhouse Square, Philadelphia 3, Secretary.

American Society for Surgery of the Hand, Palmer House, Chicago, Jan. 26 Dr. Joseph H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

International Post Graduate Medical Assembly of Southwest Texas, Municipal Auditorium, San Antonio, Jan. 23-25. Dr. John H. Hinchey, P. O. Box 2445, San Antonio 6, Secretary

Puerto Rico, Medical Association of, Santurce, Dec. 13-17. Dr. Victor J Montilla, P. O Box 3866, Santurce 29, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 10-15 Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Southern Surgical Association, Hollywood Beach Hotel, Hollywood, Fla., Dec. 5 7. Dr. John C. Burch, 2112 West End Ave., Nashville 5, Tenn., Secretary.

DEATHS

Halliday, Charles H., Baltimore; born in Metropolis, Ill., Sept. 26, 1880; College of Physicians and Surgeons, Baltimore, 1904; medical officer, United States Coast and Geodetic Survey, 1905-1906, when he joined the medical department of the U. S. Army in the Philippines and resigned in 1915 to accept position as medical superintendent of Zamboanga Hospital in the Philippines; a year later joined the Royal Army Medical Corps and served in France until November 1917; rejoined the American Army as captain and was assigned to Military Hospital in Paris from November 1917 to April 1918; medical inspector, Chateau Thierry Sector, April 1918 to October 1918; promoted to major in 1918; at the request of the International Red Cross Society he became epidemiologist for the Ministry of Health of Poland and then served with the American-Polish Typhus Commission from August 1919 to December 1919; later was medical inspector for the American Red Cross Commission to Poland, then deputy commissioner to Poland; senior epidemiologist for the Minnesota State Department of Health in 1921; surgeon in the U. S Public Health Service Reserve, 1921-1922, when he was appointed epidemiologist for the California State Department of Health; in 1929 accepted position as epidemiologist for the Maryland State Department of Health and was later made chief, bureau of communicable diseases, serving in this capacity until his retirement in January 1950; colonel in the Maryland State Guard during World War II; received decorations from the United States, Britain, France, Poland and Russia; died in the University Hospital September 30, aged 70, following a gallbladder operation.

Allen, Elijah Henry, Washington, D. C.; Howard University College of Medicine, Washington, 1894; for many years affiliated with Freedmen's Hospital, where he died September 28, aged 89.

Baker, Archie Maurice ⊕ Lindenhurst, N. Y.; Syracuse University College of Medicine, 1922; member of the American Association of Industrial Physicians and Surgeons; past president of the Suffolk County Medical Society; served as village health officer; member of the board of education; director of the Lindenhurst Bank; affiliated with Southside Hopital, Bay Shore; consultant at Kings Park (N. Y.) State Hospital; died September 24, aged 54. of acute myocardial infarction

Baker, Frank Macklin ⊕ Indianapolis; Northwestern University Medical School, Chicago, 1936; served during World War II; affiliated with the Veterans Administration Hospital at Fort Harrison, where he died September 24, aged 40, of myocardial infarction.

Balliet, Tilghman M., Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1887; professor of therapeutics, emeritus, Dartmouth Medical School, Hanover, N. H.; died September 27, aged 91.

Belknap, Virgil Clarence, Nampa, Idaho; Jefferson Medical College of Philadelphia, 1894; member of the American Medical Association; affiliated with the State School and Colony; on the staff of Mercy and Samaritan hospitals; died September 20, aged 78, of coronary thrombosis.

Benson, Gideon H., ⊕ Richland Center, Wis.; Rush Medical College, Chicago, 1904; served during World War I; president of the board of education and coroner; director of the Farmers and Merchants Bank; died in Presbyterian Hospital, Chicago, September 26, aged 83, of bronchopneumonia.

Berry, Jerome Francis ⊕ Kalamazoo, Mich.; University of Vermont College of Medicine, Burlington, 1913; in 1937 was appointed to what was then the newly created Michigan State Hospital Commission; served during World War I; for many years affiliated with Kalamazoo State Hospital; died in the New England Deaconess Hospital, Boston, September 23, aged 64, of gastrointestinal hemorrhage.

Carolus, Walter I., Sterling, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1902; member of the American Medical Association; served as city health officer; died in Community General Hospital September 18, aged 77, of carcinoma.

Diedling, Rudolph Francis, West Palm Beach, Fla.; Albany (N. Y.) Medical College, 1896; served during World War I; died September 14, aged 75, of heart disease.

Ewing, John Sharp ⊕ Newellton, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1904; served during World War I; died in Vicksburg, Miss., September 18, aged 70, of carcinoma of colon.

Heim, Lyman David ⊕ Schuylkill Haven, Pa.; Jefferson Medical College of Philadelphia, 1903; for many years president of the board of health of Schuylkill Haven and member of the board of education; past president of Schuylkill County Medical Society; one of the founders and served as chief of staff of the A. C. Milliken Hospital in Pottsville and the Good Samaritan Hospital; physician for the county almshouse; died September 19, aged 73, of heart disease.

Janson, Christian William, Brooklyn; Cornell University Medical College, New York, 1902; fellow of the American College of Physicians; member of the National Gastroenterological Association; served with Wyckoff Heights Hospital and Lenox Hill Hospital; died September 15, aged 71, of coronary thrombosis.

Keppel, Frederick Dudley, Syracuse, N. Y.; Southern Homeopathic Medical College, Baltimore, 1897; served during World War I; surgeon of the Army and Navy Union of New York State; died September 13, aged 77, of coronary occlusion with infarction.

Lynch, Thomas Augustine, Lowville, N. Y.; Fordham University School of Medicine, New York, 1919; member of the American Medical Association; served during World War I; served as physician for Lowville Free Academy, the Lewis County Jail, and Lewis County Selective Service Board and health officer of the village of Lowville; affiliated with Lewis County General Hospital, where he died September 17, aged 54, of injuries received in a fall.

Maben, Buel Wilber, Kingston, N. Y.; Long Island College Hospital, Brooklyn, 1892; died in the Masonic Home Hospital, Utica, September 15, aged 80, of coronary sclerosis.

McCall, Samuel W., Collierville, Tenn.; Memphis (Tenn.) Hospital Medical College, 1893; died September 18, aged 82, of cerebral hemorrhage.

Meinzer, Martin Stoetzel ⊕ Perth Amboy, N. J.; Columbia University College of Physicians and Surgeons, New York, 1905; fellow of the American College of Surgeons; formerly school physician, city physician and on the board of health; served on the staff of Perth Amboy General Hospital, where he died September 14, aged 72, of acute myocardial infarction.

Parker, Paul Godwin ⊕ Erwin, N. C.; Medical College of Virginia, Richmond, 1916; member of the board of medical examiners of the State of North Carolina; past president of the Harnett County Medical Society; served during World War I; president of the county board of health; affiliated with Good Hope Hospital; died September 19, aged 57, of coronary occlusion.

Pearson, Charles Edward, Staten Island, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1900; member of the American Medical Association; fellow of the American College of Surgeons; past president of the Richmond County Medical Society; at one time trustee of the Staten Island Savings Bank; formerly served on the staff of Seaview Hospital; for many years affiliated in various capacities with Staten Island Hospital, where he died September 16, aged 72.

Sauthoff, August ⊕ Madison, Wis.; Rush Medical College, Chicago, 1905; member of the American Psychiatric Association; specialist certified by the American Board of Psychiatry and Neurology; served on the staff of the Mendota State Hospital; died September 19, aged 74, of subdural hematoma and cerebral contusion as the result of an automobile accident.

Scouler, Ambrose Alphonse, New York; Columbia University College of Physicians and Surgeons, New York, 1896; for many years in charge of the tuberculosis clinic of the health department in Brooklyn; affiliated with St. Vincent's Hospital; died in Fair Oaks Sanatorium in Summit, N. J., September 18, aged 78, of arteriosclerosis and cardiac asthma.

Seitz, George, Holyrood, Kan.; University Medical College of Kansas City, Mo., 1900; member of the American Medical Association; served as health officer of Saline County; died in St. John's Hospital, Salina, September 14, aged 71, of cerebral hemorrhage.

Smith, Frank Campbell, Bessemer, Ala.; Birmingham Medical College, 1903; member of the American Medical Association; affiliated with the Employees Hospital of Tennessee Coal, Iron and Railroad Company in Fairfield, where he died in the Lloyd Noland Hospital September 14, aged 71, of myocardial infarction and coronary disease.

⊕ Indicates Fellow of the American Medical Association.

FOREIGN LETTERS

LONDON

(From a Regular Correspondent)

Sept. 22, 1950.

International Society of Haemotology

The Third Congress of the International Society of Haemotology was held in Cambridge, under the presidency of Sir Lionel Whitby, August 21-26.

Anemia.—The first meeting on this subject was devoted to therapy, and Dr. E. Lester Smith (England) opened with a paper describing the isolation and properties of vitamin B_{12}. This was followed by a discussion by Dr. E. H. Morgan and his co-workers (United States) and Dr. Grace Goldsmith (United States) on the effect of the oral administration of vitamin B_{12} *in pernicious anemia, in the absence of known sources of the* intrinsic factor. The latter described the effects of vitamin B_{12}, given orally and parenterally. Other contributions concerned the therapeutic effect of vitamin B_{12} obtained from a variety of new sources, the use of the vitamin in the treatment of tropical macrocytic anemia and the effect of cobalt therapy in various anemias. Dr. O. P. Jones (United States) described the action of antianemic substances on embryonic prehepatic erythropoiesis. Dr. G. Larsen (Norway) described the pathogenesis of the macrocyte and pointed out that even in adequately treated pernicious anemia macrocytes still showed in the peripheral blood. The thickness of the cells was about half of normal and their life span 40 to 60 days. Further papers and discussions centered on whether vitamin B_{12} alone was an adequate hemotherapeutic agent in pernicious anemia.

On August 25 a session was devoted to nutritional factors in anemia, and Dr. C. R. Das Gupta (India) discussed the etiology of nutritional macrocytic anemia. Drs. V. Ramalingaswami and H. M. Sinclair (England) spoke on the etiology and pathogenesis of polycythemia in pyridoxine deficiency in the rat. Dr. J. F. Rinehart (United States) gave an account of experimental pyridoxine deficiency in the rhesus monkey. The action of folic acid, liver extracts, vitamin B_{12} and other substances with antianemic properties as described by Dr. A. Aschkenasy (France), L. Tentori and G. Vivaldi (Italy), O. Carrere-Comes (Italy) and G. Sotgiu and C. Cacci (Italy). Dr. A. R. Axelrod and L. Berman (United States) presented their findings in the bone marrow in hypothyroidism and hyperthyroidism. The incidence of lymphocytes in bone marrow in hyperthyroidism may reach levels comparable to chronic lymphatic leukemia with no peripheral lymphocytosis.

Leukemia.—Leukemia due to benzine, one of the rare human leukemias of which the cause is known, was the subject of papers by Dr. J. Bernard (France) and Dr. L. Braier (Argentina). The cytology of acute leukemias, unusual types of leukemias in children, the possibility of a virus in the etiology with some supporting experimental work and the significance of leukemia plasma in cytogeneses were also discussed.

Problems of Coagulation.—The session here was opened by Dr. F. J. Leibetseder (Austria) who discussed the effect of epinephrine and dihydroergotamine on the first stage of coagulation. Drs. R. Breda and R. Bernardi (Italy) described a condition present in two brothers belonging to a family affected with hereditary hemorrhagic telangiectasia, who showed a prolongation of prothrombin time. Experiments conducted with plasma from these cases suggested the possibility of an antiprothrombin conversion factor. Other experts described the coumarin treatment of experimental thrombosis. The correlation between deficiencies or increases of blood-clotting factors and dysproteinemias was described by Dr. P. de Nicola (Italy). The clinical and hematological problem of thrombophilia was discussed.

Immunohematology.—In the first meeting devoted to immunology, papers were read by Dr. L. Berman and co-workers (United States) on the so-called lupus erythematosus inclusion phenomenon. The present position of blood groups was reviewed briefly by Dr. J. Van Loghem (Holland). An account was also given by other experts on the Duffy blood group system. Dr. A. D. Mourant (England) described the distribution of blood groups in relation to transfusion organization, and Dr. G. Fulton Roberts (England) discussed the prozone inhibition that some antiglobulin serums show when tested against weakly sensitized cells.

Dr. A. S. Wiener (United States) described with illustrative cases the medicolegal application of the rhesus blood types. Dr. P. Levine (United States) summarized the position of the Kell-cellano system of blood factors, and Drs. R. R. Race and R. Sanger (England) described a blood lacking in any detectable representative of the C and E series of allelomorphic antigens. This case represents a probable deletion in a human Rh chromosome and supports the separability of the C, E and D genes. A notable paper was presented by Dr. S. Filitt-Wurmser and co-workers (France) on the differentiation of "A" blood groups by their agglutinins. Dr. P. Vogel (United States) helped to conclude the session by a communication on the technical consideration and results in replacement transfusion in infants.

The Clerical Work of a Doctor's Surgery

A recent report by Dr. E. D. Willis and Anne G. Shaw in the *British Medical Journal* on the clerical work in a physician's surgery aroused sufficient interest to appear summarized in the *London Times.* With the increase of clerical work, e. g., compulsory record keeping and certificate writing involved in the change-over in this particular practice, from one that was mainly "private" to one mainly "national health," the services of a motion study investigator were enlisted to eliminate redundancy and improve the efficiency of the record keeping of the practice.

A definition of motion study is given in the article as the scientific investigation of the movements involved in the performance of any piece of work and the development of a plan which eliminates unnecessary movement and conserves energy, time and material. This method of improving efficiency is, of course, well known in industry. The first essential in such an investigation is a study of existing methods, then to record them and analyze them and then to make use of one of the available technics to institute improvements. In this case a simple technic sufficed, that is, the process chart. This chart makes available a series of facts in such a way that they can be both visualized as a whole and examined in detail. The process chart enables each detail of procedure to be questioned. Is its place in the sequence right? Can it be combined with any other detail? Can it be simplified? On this a further chart is made and a new simplified and streamlined procedure is evolved, and, it seems to have been a definite improvement in the clerical work both as regards efficiency and the volume handled.

In examining the clerical procedures in the practice, the investigators found there were three sets of records: a log book, into which messages received by telephone were entered immediately; a visit book, in which records were kept, month by month, of patients visited in the course of an illness, and a record of the necessity of visiting a chronically ill patient, that is, a routine follow-up visit. Third, a series of record cards for private and national health patients on which clinical details were noted and, in the case of the former, the fee was recorded.

In the new methods evolved, the investigator was able to eliminate the second record, the visit book, entirely. He did this by making further use of the permanent record cards and by making space available for a wall rack into which each morning the secretary placed cards for the patients being treated, the chronically ill patients due for a visit and any new patients' cards which may have come in from the previous day (telephone requests or visits). The cards were arranged in columns for each day of the week. Space was made available at the end of the rack for two columns for cards which were required during the following two weeks.

A small sliding table was placed at the bottom of the wall rack containing prescription forms, certificate forms and the National Health Formulary, so that when the doctor returned from a visit he could write out notes, prescriptions and certificates on the spot. He could also enter details on cards where needed and regroup the cards where necessary. The laborious copying of the names of patients who were visited in one month into the page for the new month was thus eliminated. Instead of having to go both to the log book and to the visitors book when compiling the list of visits for the day, the doctor merely had to glance at the cards in the column for a particular day and make a list in his notebook of the patients who required a visit. On the return from the visit notes from the notebook were entered on the card. As a result of this the doctor is able to perform necessary clerical work more efficiently and the greater volume due to the National Health Service and have more time for the clinical examination of patients, and perhaps more time for well earned leisure.

Colchicine in the Chemotherapy of Cancer

No doubt stimulated by the recent reports on the so-called secret cure for cancer, and by its leading article on the subject, the *British Medical Journal* in another leading article published an interesting review of the therapeutic effect of colchicine in cancer. In the first article it was pointed out that part of the secret cure was suspected of being oral administration of colchicine. The drug, they say, is a radiomimetic and has been much used in research for a chemotherapeutic agent against cancer. It is an alkaloid derived from the autumn crocus and is probably the most powerful "radiomimetic" drug known; the cellular changes induced are similar to those induced by roentgen rays. Even at dilutions of 1 to 100,000,000 it can bring about the typical mitotic arrest at the metaphase stage. Microscopically, areas of a tissue treated with colchicine will sometimes show more cells in arrested division than in the resting state. Ludford (*J. Nat. Cancer Inst.* 6: 89, 1945) examined the mode of action of colchicine on tissues grown in vitro and observed that the drug does not differentiate between embryonic and neoplastic tissues, which are equally sensitive to its mitosis-arresting activity. Although other drugs produce a similar effect, Ludford points out that colchicine is unique, in that it does not arrest the initial phase of division but brings the process to a standstill at the metaphase in a remarkably wide range of concentrations. There is little evidence that it stimulates mitosis as well as block it at the metaphase. Further evidence shows that in high dilution it slows down the rate at which cells enter the mitotic cycle. Macroscopically, the most obvious effect of the drug on a tumor is hemorrhage of the kind also caused by polysaccharide fractions of bacterial filtrates, for instance, from Serratia marcescens. Although there is a close parallel between the nucleotoxic action of colchicine and of roentgen rays, e. g., the acquired tolerance of tumor cells to the drug and the acquired radio resistance of tumors which were previously radiosensitive, the article points out there are certain differences in the toxic effects on the nuclear chromatin. Colchicine is much more specific in its action on the nuclear structures. Probably the most outstanding difficulties in the colchicine treatment of tumors is the lack of cell type specificity. Tests with the aim of supplementing the action of colchicine with radiotherapy have been, on the whole, without success. Several workers have investigated the action of colchicine in the treatment of cancer in man, but it was found that the drug caused very unpleasant symptoms, and sometimes death from colchicine poisoning. A woman with adenomedullary carcinoma of the breast was treated with colchicine combined with roentgen rays. The lesion shrank to a third of its original size and then began to grow again rapidly, with fatal results. In a patient with an anaplastic carcinoma of the neck a similar reaction was noted; the central portion of the tumor became necrotic, but the peripheral layers grew with increasing speed. The article sums up by citing Seed, Slaughter and Limarzi to the effect that, although the rapidly growing cancer cells are much more susceptible to the poison, the concomitant general toxic effect is much too great to permit any curative effect.

Gastrectomy

In a leading article, the *Lancet* produces some interesting figures with regard to gastrectomies. It states that it would probably be fair to say that 95 per cent of patients survive the operation, 75 per cent are relieved of their old symptoms without acquiring new ones and 20 per cent have further symptoms due either to recurrent ulceration (3 to 4 per cent) or to disturbance of alimentary function. This disturbance, they state, is occasionally severe. They quote one doctor-contributor, "If he had known about the attacks of extreme lassitude which were to follow his gastrectomy he would rather have kept his ulcer and borne its pain."

ITALY

(From a Regular Correspondent)

FLORENCE, Sept. 17, 1950.

Protein Synthesis

In addition to the lectures presented at the Superior Institute of Public Health in Rome which were previously reported, Prof. Artturi Virtanen, Nobel Laureate and director of the Institute of Biochemistry in Helsinki, spoke on nitrogen assimilation and protein synthesis. While most micro-organisms and higher plants use as a source of nitrogen either nitrates or ammonia, some micro-organisms are able to use molecular nitrogen. According to the speaker, the metabolic pathways which start from these sources of nitrogen must converge at an early stage, because there is no appreciable difference in the proteins or in the enzyme systems of the cells, irrespective of the source of the nitrogen. The role of ammonia in the synthesis of the amino acids has been amply confirmed, but hydroxylamine originating through reduction of nitrates and the aerobic fixation of molecular nitrogen may also take part in the synthesis of the amino acids.

The speaker discussed also the formation of the peptide linkage and the synthesis of protein. Whether amino acid synthesis precedes the formation of the peptide linkage or whether the amination occurs after the linkage is formed is not known. The concept of Bergman on the enzymatic formation of peptides through a dehydration process is not universally accepted and, from the point of view of energy requirement, does not seem likely. On the other hand, the participation of a phosphoric acid ester in the synthesis seems well founded. The synthesis of polypeptides, considered as counteraction to enzymatic hydrolysis, has been studied recently by the speaker and his co-workers. The peptides, having a small molecule, combine to form under the action of pepsin a polypeptide, with a larger molecule, the synthesis of which proceeds gradually. At the beginning, polypeptides of an average of 8 to 12 peptides of small molecule are formed. With longer periods of reaction, the size of the polypeptides increases continuously; the average molecular weight of the largest synthesized polypeptides is about 12,000. The roentgen diffraction pattern of such polypeptides is similar to native protein, but the rings are clearer and more defined. The potential energy for the synthesis of polypeptides by the action of proteases seems to be greater than the energy required for the synthesis of dipeptides and tripeptides. The synthesis of polypeptides (plasteins) has been obtained from zein hydrolysate by the action of pepsin. The great specificity of proteases and their behavior in the in vitro synthesis of polypeptide chains prove synthesis of polypeptides in vivo under the influence of proteases.

COLOMBIA

(From a Regular Correspondent)

BOGOTÁ, Sept. 15, 1950.

Basic Principles for a Public Health Program

The economic mission organized by the International Bank for Reconstruction and Development in Washington, under the auspices of the Colombian government, formulated a program to raise the standard of living in Colombia. The mission presented its report to the authorities in Washington and in Bogotá on August 13. This plan achieves one of the main purposes of the institution, namely, to give advice and technical aid to countries. The mission, presided over by Mr. Lauchlin Currie, worked in Colombia for one year. The results accomplished were recently reported in a 900 page book, "Principles of a Program for the Improvement of Public Health and Standards of Living in Colombia," published by the Press of the Bank of Colombia. The program planned will be developed in the course of five years. It covers the fields of industry, agriculture, public roads, oil wells, electric power, public works, taxes, international exchange and public hygiene. The program is now under careful study by the heads of the International Bank for Reconstruction and Development and by the government of Colombia. The chapter concerning hygiene and public health contains the following statement: "Health is the most important factor in raising the standard of living of the people." The life expectancy at birth in Colombia is less than 40 years, whereas in countries with good sanitary conditions it is 70 years. This reduced life span together with early deterioration of working capacity of laborers, because of poor health, causes a higher proportion of dependents for each worker, more than 4 to 1.. The incidence of diseases, including endemic tropical diseases as well as those common to temperate zones, is high. Nutritional disorders are common. The sanitary precautions are minimal. Purification of milk and the sewer and waste disposal systems are inadequate. These problems are receiving attention. The campaigns against malaria and other common diseases in the country have begun Several hospitals and medical centers have been built, and an extensive program for the construction of aqueducts and sewers has been started. However, there is still a great deal to be done.

The most important aspect of a public health program lies in the prevention of disease. The following needs call for prompt attention: (1) organization of the public health service with definition of its functions, (2) protection of the health of the people by the supply and maintenance of sanitary facilities, (3) recruitment and training of professional personnel for public health service and (4) enlargement and improvement of hospitals and other medical centers.

The mission recommends that the relations between the Ministry of Hygiene and the dependent agencies be clarified. The national government should continue to give financial support to the local dependent agencies. The Ministry of Hygiene should supervise the distribution and use of such funds and should otherwise restrict itself to functions such as preparing and issuing laws, fixing standards of health, giving advice and collecting data from research work and statistical studies. It should be responsible for the administration of certain health and hygiene institutions of the entire country or of the large regions of the country. The departments under the ministry should be responsible for services such as the organization and function of clinics for the diagnosis of disease and the distribution of drugs and biological products; the municipal dependencies would carry on most of the routine treatments and the activities for prevention of diseases in the municipalities. The main requirements are housing, adequate public services, aqueducts, sewers, hygienic toilets and septic tanks. Measures for controlling sanitation and the quality of foods and milk are important.

It is calculated that 2,750 physicians, 870 dentists and dental assistants and 6,250 nurses will be needed in 1955 to carry out the program. This increase over the present figures for the aforementioned categories is considerable. For this reason, public employment of physicians and persons in the medical branches, mainly on a part time basis, will be necessary. Several measures, such as the creation of the National School of Hygiene, have been taken to increase the reserves of personnel. The mission recommends a substantial increase in salaries, better working conditions, security of jobs and opportunities for progress by means of a genuine merit system. Emphasis is given in the report to the campaign against infectious and parasitic diseases. The progress obtained in recent years in the treatment of such diseases as malaria, smallpox, diphtheria, whooping cough, syphilis and gonorrhea has been so satisfactory that these campaigns, if properly organized, would have excellent results. It is recommended that the present program against leprosy, which now uses up almost one fourth of the national budget for hygiene, should be modified. The actual expenses are excessive in proportion to the importance of leprosy in Colombia.

The Ministry of Hygiene calculated hospital needs on the basis of 5.3 beds per 1,000 persons (the present proportion is 2 per 1,000). This expansion seems to be too great to be accomplished in five years. It is therefore suggested that hospital beds be increased in a proportion of 3 beds per 1,000 persons for the whole country. The minimum proportion will be 2 per 1,000. This program requires more than 17,000 new beds in the general hospitals. The provision of 4,500 additional beds for tuberculosis is recommended. The Ministry plans to build some 146 health centers in the large cities and 648 subordinate centers in the small towns.

The most important social welfare centers are the Social Welfare and Public Aid stations. These centers are supported and supervised by the national government, and their activities are limited almost exclusively to the support and administration of hospitals and other institutions. A much greater number of workers is needed. The annual cost of the program will be about 24 per cent of the total budget—8 per cent for health and maternity, 4 per cent for a pension plan, 4 per cent for invalidism, 4 per cent for old age benefits and 4 per cent for workers' insurance. The employer, the employee and the government share equal portions in the premium. The problem of the relations between the social security system and the other programs of hygiene and social welfare is complicated. The mission did not intend to reach definite conclusions. However, it points out that the new program of social insurance should be developed without interfence with the progress of previously organized social services.

Personals

Dr. Braulio Henao Mejia, former dean of the school of medicine of the University of Antioquia and professor of the gynecology clinic, was appointed governor of the District of Antioquia.

Dr. Gonzalo Montes Duque, professor of pharmacology at the National University and former public official of UNRRA, was named secretary of social aid of the Department of Cundinamarca.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Osteopathy: Osteopath's Right to Practice Surgery and Use Drugs.

This was an action to restrain the Governor and Attorney General of Kansas from enforcing the medical and osteopathic practice acts as construed by the Kansas Supreme Court. The hearing was held before a three judge court in the United States district court, district of Kansas, second division.

The plaintiffs, osteopaths licensed under the laws of Kansas, claimed that the Kansas medical and osteopathic practice acts as interpreted by the Kansas Supreme Court are void and in violation of the Fourteenth Amendment of the Constitution of the United States for the reason that such interpretations have prohibited the plaintiffs from using drugs and operative surgery in their practice of osteopathy notwithstanding that in osteopathic schools they are required to study and qualify themselves in the use of drugs and the practice of surgery. This, they said, deprives them of liberty and property without due process of law.

The Kansas Supreme Court has, on several occasions, interpreted the applicable statutes to mean that persons licensed to practice medicine and surgery may use drugs and surgery, while those licensed to practice osteopathy are prohibited from practicing medicine and surgery. Under this construction, certain of the plaintiffs had been personally enjoined from the use of drugs and surgery. The plaintiffs, both by evidence and argument, pointed to their educational qualifications, to the standard of osteopathic colleges generally, to the training received by osteopaths in comparison to that of doctors of medicine and surgery and to the scope of the examination given osteopaths by the state osteopathic board. They asserted that they study the use of drugs and the performance of surgery in their schools to the same extent that medical students do in medical schools and that on graduation they are qualified in these branches of the healing art to the same extent as are graduates from medical schools. They therefore contended that the restrictions placed on them are unreasonable, arbitrary, detrimental to the public health, an unreasonable exercise of the police power, discriminatory and in violation of the Fourteenth Amendment of the United States Constitution.

The court found that as of 1913 (the year in which the osteopathic act was passed) the course of study in osteopathic schools did not include the study of materia medica and pharmacology, that in other respects the course of study in osteopathic schools with regard to the use of drugs and performance of surgery was substantially the same as in medical schools, the pedagogy differing only in emphasis, intensity and degree. It is well settled, said the court, that the police power of the state extends to the regulation of certain trades and callings, particularly those which closely concern the public health. Practitioners of the healing art are properly subject to police regulations, the details of which are primarily with the legislature and are not to be interfered with by federal courts so long as fundamental constitutional rights are not violated. Equal protection of the laws does not preclude states from resorting to classification for various purposes of legislation, and narrow distinctions will justify classification in legislation if they are reasonably related to the objects of legislation. In pursuance of this power, the court continued, Kansas has seen fit to differentiate between the treatment of human ills through the use of drugs and surgery and the treatment of such ills by means of manipulative therapy. In regulating the practice of the two branches of the healing art, different educational requirements are made for each. The examinations given to applicants of each class are distinguishable under the pertinent statutes designed to insure qualified, licensed practitioners in each of the two fields. Kansas has seen fit to set up one board to examine those who would practice surgery and the use of drugs and a separate board to examine those who would practice cure of disease by manipulation or osteopathic practices. It has set up the qualifications which applicants must meet who would take the examination before the medical board for the right to practice surgery and medicine and the qualifications of applicants who would take the examination before the osteopathic board for the right to practice osteopathy. No one would seriously contend that it is arbitrary or unreasonable to compel one who seeks the right to perform surgery or administer drugs and medicines to be a graduate of an approved school or that he take the examination before a board composed of members qualified specially in such subjects. In order for plaintiffs to make a case entitling them to relief under the Fourteenth Amendment, the court continued, it is necessary for them to show that the osteopathic colleges from which they are graduates meet all the educational requirements of the Kansas statutes and of the rules adopted by the medical board for those who would practice surgery and the use of drugs and medicine, that they are approved schools, or that approval has been arbitrarily and unreasonably denied, and that they have been denied the right to take the examination before the medical board. The plaintiffs contended that graduating from osteopathic colleges maintaining comparable courses of study with medical schools and passing the osteopathic board of examination are sufficient to entitle one to the practice of medicine and surgery. With this contention the court did not agree. It is still necessary, said the court, that such schools be approved as provided by law and the appropriate regulations and that graduates therefrom take the examinations before the medical board. Of course, if approval were arbitrarily denied to a qualified osteopathic school and if its graduates were arbitrarily denied the right to take the examination before the medical board, a different question might arise, but such is not the case here. Statutory regulations requiring all applicants for the right to practice surgery and the administration of drugs and medicine to be graduates of approved schools and to take an examination before a medical board composed of members qualified in such subjects are not unreasonable or arbitrary and therefore do not contravene any rights provided by the Fourteenth Amendment.

In a supplemental opinion, after reviewing a number of cases and statements from college catalogs, the court said that osteopathy wholly repudiates drug therapy and sanctions the use of drugs only as anesthetics, external antiseptics, antidotes for poison and possibly as a palliative for pain. Furthermore, osteopathy recognizes that surgery should be employed, when necessary, not as a part of the practice of osteopathy, but as a complement thereto. These catalogs state in substance that the practice of osteopathy and major surgery should not be combined; that the school undertakes to prepare its students to do minor surgery only, to diagnose conditions in cases when major surgery should be resorted to and to give after-treatment in major surgery cases. Such catalogs further state in substance that, while the teaching of surgery has been broadened to meet the demands of patients, osteopathy would never countenance the use of drugs except for the limited purposes stated above. Thus it will be seen, the court continued, that in the year 1913 there were fundamental differences in the osteopathic theory of therapeutics and the practice of osteopathy and the theory of therapeutics of medicine and surgery and the practice of medicine thereof. These fundamental differences fully justified the state in placing the practice of osteopathy in one classification and the practice of medicine and surgery in another classification, in establishing different educational requirements and providing different examinational tests for osteopaths and in restricting osteopaths to the practice of osteopathy, in order to preserve the public health and welfare. It may be that the curricula of the schools of osteopathy have either been broadened or varied since 1913 so as to teach a limited use of drug therapy and so as to better prepare their students for the performance of surgery as a complement to the practice of osteopathy. Osteopathy, however, was a system of treating diseases of the human body without drugs or surgery and colleges cannot change the laws of Kansas or widen the scope of the osteopath's certificate so as to permit him to practice other systems of healing by the simple expedient of varying their curricula. If an osteopath in Kansas desires to engage in the practice of medicine and surgery, he must meet the requirements laid down for a license so to do. These requirements are attainable by reasonable study and application, are appropriate to the end sought to be attained and are neither unreasonable nor arbitrary. If the osteopathic colleges desire to broaden or vary their curricula so as to train their students not only to practice osteopathy but medicine and surgery, they must meet the requirements to constitute them approved medical schools. Accordingly the injunction requested by the plaintiffs was denied and judgment was entered in favor of the defendants. —*Gleason v. Carlson, 92 F Supp. 280 (Kansas 1948).*[1]

Medical Motion Pictures

The following 16 mm., black and white, sound films are the entire Marriage Series, consisting of five motion pictures produced in 1950 by Affiliated Film Producers for the McGraw-Hill Book Company. They have been planned to complement a textbook, "Marriage for Moderns," prepared by Dr. Henry Bowman, Chairman, Division of Home and Family and Department of Marriage Education at Stephens College, Columbia, Mo. Procurable on purchase from McGraw-Hill Book Company, Inc., Text-Film Department, 330 West Forty-Second Street, New York 18, and on rental from Association Films, Inc., 35 West Forty-Fifth Street, New York 19, or the regional office.

This Charming Couple. Showing time 19 minutes.

This film deals with the reasons why many marriages fail even though both partners are decent, well meaning persons. In the film, the hero and heroine each try to make over the other, instead of accepting each other as human beings with certain strengths and weaknesses that cannot be greatly altered. The situations which are portrayed could each have been worked out with a reasonable degree of satisfaction, had the two young persons been realistic, instead of romantically insisting on a "dream boy" or "dream girl."

This production would elicit stimulating discussion in any young people's group. While the setting is a college campus, groups of young men and women who have not attended college could identify themselves with the human characters shown. Guidance personnel or leaders of young people's groups would also find the film valuable. Skilled leadership for discussion following the film would be necessary, for there are some situations which might be threatening to young people unless they were discussed afterward.

Marriage Today. Showing time 22 minutes

This motion picture illustrates how two young couples have worked out some of the problems of marriage by being more generous and accepting of one another than the unfortunate pair in "This Charming Couple" were able to be. In both couples, the relationship is always more important than the momentary satisfaction of the individual. Realistic situations, in which one partner cheerfully gives up what he or she wants at the moment to cooperate with and support the other, drive home the lesson of "Marriage Today" vividly and sympathetically.

Unlike the other films of this series, it makes use of a narrator rather than of the conversation between the characters to make its points. The result is that this film tends to become "preachy" in spots. It would probably not hold the attention of a group of young people as well as some of the others in the series. However, the positive encouraging approach of the film is so good that it outweighs any shortcomings it may have.

The film would be useful with college age people, young married couples or for guidance personnel in training. Young people could identify with the real life situations and feel better able to cope with their problems as a result. Discussion under skilled leadership would help young people clarify their ideas about the situations portrayed, but discussion might not be as spirited as with some of the other films.

Choosing for Happiness. Showing time 14 minutes.

Through the conversation and behavior of two girls on a college campus, two different ways of dealing with the opposite sex and choosing a mate are portrayed. Without being at all moralistic in tone, the film shows how the girl who always wants to change her men "for their own good," or who wants someone perfect, is sure to be disappointed. The girl who is somewhat less attractive but more accepting of people does better in the long run. This girl is able to help her more demanding friend see that she must be willing to adjust if she is to find happiness.

This film brings in many kinds of young people, the athlete, the "brain," the quiet one and the strong-willed one. It holds one's interest and is perhaps the most effective of the series, for it is neither a "success story," like "Marriage Today," nor is it in any way threatening, as "This Charming Couple" might possibly be.

Young people from the junior year in high school through college age would enjoy and profit by this film. It would be of value for parents of older adolescents or for teachers and guidance personnel. Discussion following the showing of this film should be provocative and lively. Like the others in this series, it could well stand alone; it would appeal to a wider age group then almost any of the others.

It Takes All Kinds. Showing time 20 minutes.

This film portrays, in a series of young people, the humorous and kindly reaction of different kinds of personalities in a tense situation. Each type of personality is shown with a member of the opposite sex, and his or her characteristic way of meeting situations is portrayed in terms of what he or she says and does on a date. The point of the picture is that in order to make a happy marriage, the partners do not have to be alike but must accept each other as they are.

The narration and conversation are skilfully combined in this film to make the different reactions of individuals, when the car runs out of gas, seem intensely human and distinctly different from each other. The author of the film has shown the strengths and weaknesses of each type so that one is left with the feeling that successful persons must all behave alike. The only possible criticism might be that somewhere in the film the statement could have been made that one does not always react in the same way to similar events, and that we all have some slight mixture of many different types of behavior. The need for even the most independent to be occasionally dependent or for the dependent to become dictatorial on occasion might have been brought out to good advantage.

This film could be used not only for college age groups but for high school students or adults. It is more than preparation for marriage; it is excellent mental hygiene.

Who's Boss? Showing time 16 minutes.

The theme of this picture is the married couple who work for the same newspaper and who have careers to further. The woman is the dominant one and is less appealing. The couple realize the competitive situation is dangerous to their marriage and work hard to straighten out their difficulties. They are shown over a period of time in which they make a good adjustment. The woman gives up most of her professional work to devote herself to her children. The man, too, makes some compromises, so that his wife can also use her talents productively in her profession.

The film is good for young people of college age or young married couples. The way that the hero and heroine work out their serious difficulties and the troubles they have along the way seem real and valid. The film holds one's interest and will undoubtedly make for spirited discussion. Skilful leadership will help to make the discussion fruitful.

A 35 mm. filmstrip accompanying each motion picture will aid in stimulating discussion following the showing of each film.

Although produced primarily for college courses in marriage and family living, these films will find acceptance among a variety of adult groups—professional, educational and civic. These films might be better used singly or two at a time, since each film necessitates thorough discussion under skilled leadership.

The photography, narration and direction are excellent.

---

[1] This case was actually decided on Dec. 9, 1948, but it was not published in the Federal Supplement Reporter Series until Oct. 16, 1950.

CURRENT MEDICAL LITERATURE

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

80:363-532 (Sept.) 1950

Application of Nutrition Research to Everyday Practice. P. C. Jeans. —p. 363.
Growth and Development of Negro Infants: II. Relation of Birth Weight, Body Length and Epiphysial Maturation to Economic Status. A. Kessler and R. B. Scott.—p. 370.
*Vitamin D Intoxication in Child with Rheumatoid Arthritis. J. S. Hyde and J. B. Richmond.—p. 379.
Toxic Lesions of Pancreas. P. V. Véghelyi, T. T. Kemény, J. Pozsonyi and J. Sós.—p. 390.
Primary Sarcoma of Liver: Report of Case. G. Willeford and V. A. Stembridge.—p. 404.
*Pulmonary Toxicity of Wetting Agents Dispensed as Aerosols. G. C. Hall Jr.—p. 408.
Treatment of Patient with Cleft Palate: Present Day Concept of a Pediatric Responsibility. D. B. Coursin.—p. 442.

Vitamin D Intoxication.—Hyde and Richmond report a girl who had had rheumatoid arthritis since infancy. The right knee continued to be the only affected joint until she reached 4 years of age, when, within several weeks, pain, swelling and limitation of motion of the joints of the hands and feet developed. Pain and limitation of motion of the spine also developed. The appetite became poor, and gain in weight was slow. The joint deformities gradually became more pronounced, and weakness and easy fatigability developed. High potency vitamin D was given orally in doses of 2 to 3 capsules (100,000 to 150,000 U. S. P. units) each day, from the development of multiple joint symptoms at 4 years of age to the time of her first admission to the hospital on March 10, 1947. This was a total of five and one-half years of therapy. The authors first saw the child when she was about 10 years of age. During the period of treatment with large doses of vitamin D, anorexia, vomiting, polydipsia, polyuria, nocturia, calcification of blood vessels, of periarticular soft tissue, of conjunctivas and of corneas, hypertension, hypertensive retinopathy and renal insufficiency had developed in the child. Some amelioration of symptoms was noted after the discontinuance of vitamin D therapy, but there was no significant improvement in the renal function after two years of observation, indicating irreversible kidney damage. When vitamin D is used in large doses, the renal function should be studied before and after treatment. The toxic effects are reversible if use of the drug is discontinued soon enough. The symptomatic improvement which is related to the sedative effect of hypercalcemia probably warranted experimentation with massive doses of vitamin D for rheumatoid arthritis in the past, but present knowledge of the toxic effects and the recent information concerning endocrine factors in rheumatoid arthritis should now invalidate massive vitamin D therapy.

Pulmonary Toxicity of Wetting Agents in Aerosols.—Hall says that wetting agents are used for the following purposes: (1) to increase fat absorption in cases of pancreatic fibrosis, (2) as mucigogic agents in the treatment of peptic ulcers, (3) as ingredients of dentifrices, (4) as solvents for penicillin aerosols, (5) to wet down dusts in mines and (6) in combination with sulfonamides to increase the moisture in croup tents in the treatment of children with laryngotracheobronchitis and similar diseases. The two radicals in these compounds are a long hydrocarbon chain, which is the lipophilic or hydrophobic group, and a short SO_4Na group, which is the lipophobic or hydrophilic group. In the experiments described by the author, guinea pigs were used. The various wetting agents were dispensed in concentrations of 1.0, 0.5 and 0.1 per cent, and atmospheric air was used to convert the solution to aerosol. The animals were exposed for eight hours a day for six days. After a week those not already dead were killed and studied. Histological sections were made of the trachea, bronchi and lungs. Sodium laurylsulfate, alkylaryl sulfonate, synthetic primary alcohol sulfate and sulfonated ester of dicarboxylic acid were studied. These were toxic in proportion to their concentration. Toxic effects consisted in degeneration and desquamation of alveolar epithelium. In 0.1 per cent concentration the agents are apparently nontoxic to guinea pigs. Limitation of the concentration of wetting agents to 0.1 per cent in experimental investigation in man is perhaps advisable.

American Journal of Medical Sciences, Philadelphia

220:117-236 (Aug.) 1950

Influence of Arterial Disease on Systolic Blood Pressure Gradients of Extremity. T. Winsor.—p. 117.
*Treatment of Angina Pectoris with Preparation of Khellin (Ammi Visnaga). C. A. Armbrust Jr. and S. A. Levine.—p. 127.
Hypertrophy of Branches of Pulmonary Artery, and Its Possible Relationship with So-Called Primary Pulmonary Arteriosclerosis in Two Infants with Hypertrophy of Right Heart. M. Wolman.—p. 133.
Acute Primary Pericarditis. I. A. Feder, J. Hoffman and H. Sugar. —p. 144.
Dosage-Response Curve for Comparison of Mercurial Diuretics. D. A. Clarke, W. Modell, T. Greiner and others.—p. 156.
Distribution of Radiomercury of Mercurial Diuretic in Some of the Body Fluids of Man. C. T. Ray, G. E. Burch, S. A. Threefoot and F. J. Kelly.—p. 160.
*Studies on Use of Aureomycin in Hepatic Disease: III. Note on Aureomycin Therapy in Hepatic Coma. J. D. Farquhar, J. Stokes Jr., C. M. Whitlock Jr. and others.—p. 166.
*Id.: IV. Aureomycin Therapy in Chronic Liver Disease with Note on Dermal Sensitivity. J. M. Shaffer, L. W. Bluemle Jr., V. M. Sborov and J. R. Neefe.—p. 173.
Dilatation of Bile Ducts and Intrahepatic Lesions with Obstructive Jaundice in Rats Fed Diets Deficient in Vitamin A. C. J. Hamre. —p. 183.
Elevated Titers of Serum Heterophil Antibodies in Three Instances of Monocytic Leukemia. G. Carpenter, J. Kahler and E. B. Reilly. —p. 195.
Effect of Procaine Administered Intravenously on Cutaneous Pain Threshold. R. F. Kibler and H. W. Schnaper.—p. 199.
Effect of Fat-Free Diet in Causing Low Serum Cholesterol. S. M. Mellinkoff, T. E. Machella and J. G. Reinhold.—p. 203.
Pituitary Versus Primary Thyroid Myxedema. A. Despopoulos and W. H. Perloff.—p. 203.
Treatment of Patient with Hyperthyroidism. A. Large and N. Taylor. —p. 213.
Nystagmus: Its Mechanism and Significance. W. F. Gorman and S. Brock.—p. 225.

Visammin in Angina Pectoris.—Visammin (2-methyl-5, 8-dimethoxyfuranochromone) is one of the three active crystalline substances that has been isolated from the fruit of Ammi visnaga Lam, a plant which grows wild in the eastern Mediterranean countries. Armbrust and Levine employed the drug in the treatment of 53 ambulatory patients with angina pectoris. The dose was generally 40 mg. three times daily, given by mouth. The patients carried on their usual activities. Placebos identical in appearance were used for a time as controls. About 60 per cent of the patients showed improvement, i. e., used fewer nitroglycerin tablets, had fewer and milder attacks of pain and could walk greater distances. There were undesirable side effects, such as nausea, anorexia and dizziness, in more than half of the patients. These were a real deterrent to the use of the drug in many instances. There is a need for a long-acting coronary vasodilator. Visammin may meet this need in an appreciable number of patients, if the untoward side effects can be controlled. Since the drug has a cumulative effect, an initial dose may be given to obtain an effective blood level, and then the amount of the daily dose may be lowered.

Aureomycin Therapy in Hepatic Coma.—Farquhar and his associates gave aureomycin, in addition to numerous supportive measures, to four patients having acute liver failure with coma. In two instances the liver failure complicated viral hepatitis; in the other two, portal cirrhosis was the complicating factor. In the experience of most observers, the mortality rate in cases of hepatic coma, particularly if the coma follows viral hepatitis, has been high despite many types of supportive treatment. The four consecutive patients with acute hepatic coma showed improvement on receiving aureomycin in addition to supportive therapy. The response to aureomycin was sufficiently striking in the first two cases and in the fourth case to suggest strongly that improvement was due to the activity of this drug. In the fourth case the cessation of coma appeared to be clearly related on three successive occasions to the administration of the drug. This action could have occurred in the intestinal tract or by antibacterial action within the liver itself, or possibly within the circulatory system.

Aureomycin in Chronic Liver Disease.—Shaffer and his collaborators report on a group of 13 patients with chronic liver disease whom they treated with aureomycin. The patients were under observation for four to 15 months. Nine of the patients gave a history of what appeared to be acute viral hepatitis with jaundice at some time prior to the present hospitalization. Another patient, although not having a clearcut history of hepatitis, had been exposed to viral hepatitis during World War II. Two patients had had portal cirrhosis, probably of alcoholic origin. In a patient with hepatosplenomegaly and abnormal hepatic function tests, the causative agent could not be ascertained. The usual dose of aureomycin was 2 Gm. per day for 30 days. In seven cases improvement resulted which may have been related to aureomycin therapy. In six cases there was little or no evidence of benefit from aureomycin. Dermal sensitivity manifested by skin and nail changes was observed in five cases. In four of these, the lesions appeared after exposure to sunlight, indicating the possibility that in some circumstances aureomycin may be a photosensitizing agent. The results of this study suggest that aureomycin therapy may be of value in some types of chronic liver disease.

American Journal of Physiology, Baltimore

162:489-730 (Sept.) 1950. Partial Index

Further Investigations on Effect of Anoxia on Convulsions. E. Gellhorn and H. M. Ballin.—p. 503.
Effect of Normal and Abnormal Respiration of Hemodynamics of Experimental Interatrial Septal Defects. G. A. Brecher and D. F. Opdyke.—p. 507.
Factors in Variation and Regulation of Coronary Blood Flow in Intact Anesthetized Dogs. E. L. Foltz, R. G. Page, W. F. Sheldon and others.—p. 521.
Carotid-Occlusion-Pressor Reflex: Influence of Existing Mean Arterial Pressure of Anesthetics and of Ganglionic- and Adrenergic-Blocking Drugs. G. Prochnik, G. L. Maison and J. W. Stutzman.—p. 553.
Evidence for Conversion of Carbon Monoxide to Carbon Dioxide by Intact Animal. R. T. Clark Jr.—p. 560.
Hepatic Uptake and Biliary Excretion of Bromsulphthalein in Dog. R. W. Brauer and R. L. Pessotti.—p. 565.
Secretion of Radio-Calcium in Milk. A. H. W. Aten Jr. and C. B. Heyn.—p. 579.
Relaxation of Pelvic Ligaments in Guinea Pigs by Acetylcholine. W. C. Young and F. E. Emery.—p. 606.
Traumatic Shock: XVII. Plasma Fibrinogen in Hemorrhagic Shock in Dog. E. D. Frank, H. A. Frank and H. Fine.—p. 619.
Renal Clearance of Sodium in Dog: Effect of Increasing Sodium Load on Reabsorptive Mechanism. E. E. Selkurt and R. S. Post.—p. 639.
Effect of Water-Soluble Vitamins on Thrombin and on Enzymatic Inactivation of Thrombin. G. Weber and K. Drechsler.—p. 665.
Effect of Sustained Expansion of Extracellular Fluid Volume on Filtration Rate, Renal Plasma Flow and Electrolyte and Water Excretion in Dog. L. G. Weston Jr., W. P. Anslow Jr., L. G. Raisz and others.—p. 677.
Changes in Blood Plasma of Guinea Pig During Acute Radiation Syndrome. H. I. Kohn.—p. 703.
Hematologic Changes and Death in Vitamin B_{12}-Deficient Rats. H. J. Borson, D. Singman, S. Lepkovsky and others.—p. 714.

American Journal of Surgery, New York

80:139-256 (Aug.) 1950

*Hindquarter (Interinnomino-Abdominal) Amputation. J. H. Saint.—p. 142.
Fractures of Shaft of Femur. A. A. Grebe.—p. 161.
Traumatic Subcutaneous Injuries to Pancreas. L. T. Wright, A. Prigot and L. M. Hill.—p. 170.
Penetrating Wounds of Chest. W. E. Walsh, J. G. Stubenbord and R. W. Tawse.—p. 176.
Hypospadias. A. A. Schaefer and J. Erbes.—p. 183.
Intrinsic Lesions of Stomach: Review of 458 Cases. A. B. Ragins and H. Cohen.—p. 192.
Physiopsychologic Treatment for Postoperative Urinary Retention. P. Treiger, J. J. Tovarek and N. A. Casciato.—p. 195.
Acute Diverticulitis of Large Bowel. L. S. Fallis and M. R. Marshall.—p. 198.
Chlorophyll and Wound Healing: Experimental and Clinical Study. C. R. Lam and B. E. Brush.—p. 204.
Thyroidectomy Using Local Anesthesia. D. E. Ross.—p. 211.
Safe Method of Inducing Local Digital Anesthesia. H. E. Hipps.—p. 216.
Acute Retrocecal Appendicitis. L. K. Stalker and P. G. Brandetsas.—p. 218.
Appendicitis in Rural Hospital: Ten-Year Statistical Survey. J. H. Mitrani.—p. 221.
Chronic Backache in Compensation Cases. S. Kleinberg.—p. 224.
Method of Treatment of Bennett's Fracture Dislocation. C. J. Wagner.—p. 230.
Simplified Technic for Closures of Thin, Friable Hernial Sacs. M. Volpe and E. Salmeri.—p. 232.

Hindquarter (Interinnomino-Abdominal) Amputation.—According to Saint hindquarter or interinnomino-abdominal amputation was first performed, although unsuccessfully, by Billroth in 1891. For the following two or three decades the number of cases in which this operation was attempted was small and the mortality rate high. In recent years the mortality rate has been reduced to about 15 per cent. The indications for the performance of this amputation as now established are more or less restricted to tumor formation, involving either the innominate bone itself or the tissues of the upper thigh, bony, soft or articular, to such an extent that a disarticulation through the hip joint obviously could not be expected to result in complete ablation of the disease. The author reports a case of osteosarcoma of the innominate bone with amputation about four months after the appearance of the tumor. The patient left the hospital on his sixteenth postoperative day with the wound completely healed. This the author believes to be the shortest period of postoperative hospitalization yet recorded following this amputation. A roentgenogram of the chest eight weeks after operation showed the presence of metastatic involvement of both lungs, although at this time the patient was feeling well. He died at home about a month later. This case serves to emphasize the paramount neecssity of early diagnosis of malignant disease if the rational treatment of adequate removal of the primary tumor is to be successful.

80:257-380 (Sept.) 1950

Rupture of Uterus. C. A. Gordon, A. H. Rosenthal and J. L. O'Leary.—p. 259.
*Placental Barrier in Carbon Monoxide, Barbiturate and Radium Poisoning: Some Original Observations in Humans. H. S. Martland and H. S. Martland Jr.—p. 270.
Delayed Suture in Management of Wounds: Analysis of 721 Traumatic Wounds Illustrating Influence of Time Interval in Wound Repair. K. F. Lowry and G. M. Curtis.—p. 280.
Primary Carcinoma of Jejunum. F. Cunha and B. M. Day.—p. 288.
Hyperextension Injuries to Finger Joints. F. J. Roemer.—p. 295.
Intertrochanteric Fracture of Hip. G. S. Leventhal.—p. 303.
Congenital Coxa Vara. F. W. Hark.—p. 305.
Lymphomas of Anorectum. E. Granet, M. B. Kagan and C. Solomon.—p. 311.
Diagnosis of Cancer of Rectum by Cytology. J. E. Ayre.—p. 316.
Carcinoma of Colon and Rectum. F. Portmann.—p. 318.
Bilateral Renal Calculi. C. W. Collings and I. E. Martin.—p. 323.
Traumatic Aneurysm of Radial Artery. A. J. Goldyne and H. L. Gardner.—p. 326.
Surgical Treatment of Varicocele. R. A. Price.—p. 330.
Sciatic Scoliosis. S. Kleinberg.—p. 332.
Esophageal Intubation for Repair of Pharyngo-Esophageal Diverticulum. R. N. Terry.—p. 338.
Appendicitis in the American Negro. J. R. Ford and C. R. Drew.—p. 341.

Placental Barrier in Poisoning.—Martland and Martland cite autopsies on two pregnant women who had succumbed to carbon monoxide asphyxiation. These revealed that carbon monoxide does not cross the placental barrier, because of its rapid fixation within the red blood cells of the mother. This is also evidence against the theory of transplacental transfer of red blood cells between mother and fetus. A doubt is therefore raised as to the correctness of the present theories of Rh isoimmunization. The authors report the first human case in which the placental transfer of barbiturates has been demonstrated by quantitative organ analysis of the mother and her fetus. The barbiturates accumulate in the fetus to a level almost twice that of the mother because of the slower and less efficient detoxication and excretory mechanisms of the fetus. This "pooling" tendency in the fetus of most of the sedatives given by the oral, rectal, parenteral or inhalation routes may explain the increased neonatal morbidity and mortality resulting from the use of such agents during labor. Seventeen children of ten mothers, who had been luminous watch dial painters, were examined for radium deposits. None showed amounts of radioactivity in excess of 0.01 microgram, which is considered the upper limit of normal radioactivity in the human body. This does not prove, however, that the gaseous emanations present in the mother's blood do not cross the placental barrier; should they do so, radioactive deposits in the children would be too small to produce harmful results. Gamma ray measurements were made in all 17 children. The more sensitive breath radon tests were used on three children who showed radioactivity in the gamma ray measurements. These observations should be put on record in view of the present interest in the biologic effects of atomic energy. Internal poisoning by ingestion, inhalation or parenteral injections of long-lived radioactive substances, in which permanent radioactive deposits can be detected and measured during life and after death, is not to be confused with the deleterious effects caused by excessive external exposure to roentgen rays, excessive amounts of radioactive material or the explosion of atomic material. Such external exposures rarely render the person radioactive. Internal poisoning by radioactive substances has been characterized mainly by anemias of the pseudoaplastic type (large doses), radiation osteitis, necrosis of the jaws and temporal bones and osteogenic sarcomas, since essentially all the retained radioactive substances are eventually stored in the bones. When the portal of entry has been chiefly the respiratory tract, bronchiogenic carcinomas have occurred. No effects on the generative organs have been noted, and sterility and genetic mutations are not a problem.

American Review of Tuberculosis, New York

62:231-336 (Sept.) 1950

*Boeck's Sarcoid: Review Based upon Clinical Study of 52 Cases. E. A. Riley.—p. 231.
Genetic Studies on Development of Resistance to Neomycin and Dihydrostreptomycin in Mycobacterium Ranae. Jen-Yah Hsie and V. Bryson.—p. 286.
Effect of Neomycin on Tubercle Bacillus and in Experimental Tuberculosis of Guinea Pigs. W. Steenken Jr., E. Wolinsky and B. J. Bolinger.—p. 300.
Electrocardiograms with Prominent S Waves in All Standard Limb Leads: Associated Patterns in Multiple Precordial Leads. W. Weiss.—p. 307.
Study of 200 Cases of Tuberculous Pleurisy with Effusion. J. C. Sibley.—p. 314.

Boeck's Sarcoid.—Riley's study of Boeck's sarcoid is based on 52 patients with generalized sarcoidosis seen at Bellevue Hospital between 1939 and 1949. The average length of follow-up on the entire group has been four years and eight months. The author presents a clinical study of the cases and a review of the literature. Boeck's sarcoid is a chronic, infectious, granulomatous disease, which in this country shows a predilection for young Negro adults. The etiology of sarcoidosis remains obscure. There is a close relation between sarcoidosis and tuberculosis, although its exact nature is not clear. There is no direct evidence that Boeck's sarcoid is caused by the tubercle bacillus. Although the disease may show complete regression, its benignity has been greatly overemphasized. The eventual outcome of this disease and the development of directly related complications are uninfluenced by any therapy. The mortality in this series has been almost 20 per cent; in an additional 13 per cent of the patients, clinically active tuberculosis has developed during the period of follow-up. These figures do not include the high percentage of patients with irreversible ocular and pulmonary damage. The term "benign lymphogranulomatosis" is misleading by its implication and probably should be abandoned.

Annals of Western Medicine & Surgery, Los Angeles

4:437-530 (Sept.) 1950. Partial Index

Medicine and Law. S. L. Warren.—p. 437.
Forensic Medicine as a Specialty. L. J. Regan.—p. 444.
Medical Practice Act, Hospital Law, Law of Malpractice. H. Hassard.—p. 450.
Narcotic Act and Its Relation to Medical Practice. W. R. Creighton.—p. 454.
Commitment and Care of Mentally Ill. F. F. Tallman.—p. 456.
Forensic Psychiatry: Limitations of Psychologic Tests. G. N. Thompson.—p. 460.
Medico-Legal Investigation of Sudden Death. R. Ford.—p. 466.
Significance of Results Obtained in Blood Grouping Tests. A. G. Foord.—p. 478.
Functions and Practice of Autopsy Surgeon in Coroner System. F. D. Newbarr.—p. 486.
Medico-Legal Problems of Workmen's Compensation. E. Thomas.—p. 495.
Industrial Poisons. R. T. Johnstone.—p. 498.
Management of Urinary Tract Infections. H. I. Riddell.—p. 507.
Management of Refractory Duodenal Ulcer. W. H. Bachrach.—p. 511.
*Seminal Vesiculitis: Disease Entity Sometimes Confused with Appendicitis. M. Russell.—p. 518.

Seminal Vesiculitis Confused with Appendicitis.—A congested or inflamed seminal vesicle may simulate appendicitis in young men. A postoperative quest for the source of the recurrent abdominal pain will lead to the adnexa in the male almost as often as in the female. Seminal vesiculitis, even when focal and primary, occurs not as a local lesion but always as a stage of generalized infection of the genital tract. It is most commonly an ascending infection, complicating urethritis or prostatitis. When the presenting symptom is pain in the right lower quadrant associated with nausea, vomiting and elevation of temperature, it may well be confused with appendical inflammation. However, the vesicular pain is usually dull and aching rather than sharp and stabbing. The initial epigastric distress which precedes the pain of appendicitis is seldom present, and the nausea and vomiting are not as constant and severe. With concomitant urethral involvement, a discharge may be present before the onset of the abdominal symptoms. In bilateral vesiculitis, which is more frequently encountered than unilateral involvement, the differential diagnosis is less difficult. Palpation of the abdomen reveals tenderness in the lower quadrants. Where the left vesicle is minimally or not at all involved and the symptoms are confined to the right side, confusion and possible error may result. Careful rectal examination may furnish a clue to the confusing picture of abdominal pain. The inflamed vesicles may become distended with purulent material and edema fluid so that they can be palpated as sausage-like projections above the prostate gland. The pressure of the examining finger on the vesicle will produce local pain and will also reproduce the abdominal pain. This latter observation is almost diagnostic.

Archives of Dermatology and Syphilology, Chicago

62:351-476 (Sept.) 1950

Scientific Work of Paul Gerson Unna: In Commemoration of One Hundredth Anniversary of His Birth. A. Hollander.—p. 351.
Treatment of Senile Keratoses with Podophyllin. A. F. Hall.—p. 362.
Decadent Descriptions in Dermatology. B. Appel.—p. 370.
Sponge Biopsy in Diagnosis of Cancer of Skin and Oral Mucosa. S. A. Gladstone.—p. 380.
Reiter's Disease: Case Successfully Treated with Aureomycin. H. Korb and E. A. Brown.—p. 391.
Atypical Blue Nevus: Report of Case. T. Kawamura.—p. 395.
Eczema of Hands from Wooden-Handled Objects. J. B. Howell and D. S. Blair.—p. 400.
Osteoma Cutis as Result of Severe Acne Vulgaris of Long Duration. M. Leider.—p. 405.
Cryotherapy: New Method. I. L. Schamberg.—p. 408.
Removal of Sebaceous Cysts by Electrosurgical Means. S. J. Robbins and N. Pensky.—p. 411.
Induced Sensitization to Certified Dye: Hypersensitivity Manifested on Sixth Exposure to Commercial Patch Testing Solutions. L. Jaffe.—p. 418.
Treatment of Dermatitis Herpetiformis Resistant to Usual Therapy. J. Kanter, L. S. Markson and I. L. Slotnik.—p. 422.
American Leishmaniasis: Report of Case with Unusual Mucocutaneous Lesions. F. A. Cordero.—p. 425.
Large Spores (Macroconidia, Fuseaux) of Microsporum Audouini in Vivo: Report of Case. I. M. Felsher and I. Eirinberg.—p. 431.

Arch. Indust. Hygiene and Occupat. Medicine, Chicago

2:123 244 (Aug) 1950

Industrial Health in Undergraduate Medical Curriculum M R Mayers —p 123
Ionizing Radiation Materials as Air Pollutants A Wolman —p 134
Effects of Air Pollution on Oral Structures J M Dunning —p 137
Effects of So Called Inert Dusts A J Vorwald —p 140
Selling Industrial Medicine to Medical Profession E Busnski —p 144
Arsine Poisoning in Smelting and Refining Industry K M Morse and A N Setterlind —p 148
Coproporphyrinuria as Index of Lead Absorption W S Johnson and N E Whitman —p 170
Distribution and Fate of Cadmium in Animal Body A M Potts, F P Simon, J M Tobias and others —p 175
Industrial Aspects of Aging E Clague —p 189
Tripelennamine Hydrochloride in Treatment of Common Cold R R Beard, S S Kroopf and M F Leeds —p 196
Management Approach to Problems of Individual Adjustment A B Gates —p 202

Archives of Internal Medicine, Chicago

86:319-490 (Sept) 1950

*Clinical Studies with ACTH and Cortisone in Renal Disease G W Thorn, J P Merrill, S Smith III and others —p 319
Nitrogen Shift in Cancer J C Bateman —p 355
Sudden and Unexpected Natural Death V Causes of Death Classified by Sex and Age S M Rabson —p 361
*Hepatic Insufficiency and Cirrhosis in Diabetes Mellitus J J Frankel C E Asbury Jr and L A Baker —p 376
Infectious Mononucleosis with Hepatitis H D Bennett J J Frankel P Bedinger and L A Baker —p 391
Extramedullary Plasmacytoma Involving Pharynx Skin and Lymph Nodes P. K Switzer, V Moseley and W M Cannon —p 402
Cardiopathy in Friedreich s Ataxia (Spinal Form of Hereditary Sclerosis) Review of Literature and Analysis of Cases of Five Siblings T H Lorenz, C M Kurtz and H H Shapiro —p 412
Recent Progress in Insulin Physiology L Bruch —p 427
Gastroenterology Partial Review of Literature from July 1948 to July 1949 J B Kirsner, W L Palmer, W L Ricketts and others —p 443

ACTH and Cortisone in Renal Disease.—Thorn and co-workers treated 26 patients with renal disease with adrenal hormones Four patients with acute glomerular nephritis were given 80 to 100 mg of pituitary adrenocorticotropic hormone (ACTH) daily for five to 13 days, the total dose ranging from 0 18 to 1 20 Gm Seven patients with subacute or chronic nephritis were treated with pituitary adrenocorticotropic hormone or cortisone, the total dose ranging from 0 36 to 2 2 Gm Six patients in the nephrotic stage of chronic glomerular nephritis were likewise treated with one drug or the other, the total dose ranging from 0 40 to 2 8 Gm Six patients with lupus erythematosus disseminatus had evidence of renal disease manifested by albuminuria and hematuria They were treated with pituitary adrenocorticotropic hormone in doses of not less than 100 mg daily, the total dose ranging from 0 90 to 7 5 Gm One to four courses of treatment were given, a single course usually lasting for two weeks Three patients with dermatomyositis and proteinuria were treated with both hormones There was no conclusive evidence in the small series of patients that these agents exert any beneficial effect on the over-all course of acute, sub acute and chronic nephritis Pituitary adrenocorticotropic hormone therapy appeared to be an effective method of inducing diuresis in patients with the nephrotic syndrome Often diuresis may be induced by a relatively short period of treatment Metabolic studies of patients with nephrosis treated with both hormones revealed differences in response of respiratory quotient, thyroid function, cholesterol and phospholipid levels from the response under similar conditions in normal persons and in patients with Addison's disease

Liver Insufficiency in Diabetes Mellitus.—Frankel and co workers performed various liver function tests on 139 diabetic patients and found 46 with abnormal reactions The hepatic insufficiency could be explained by factors other than diabetes mellitus, such as chronic alcoholism and cardiac disease with episodes of failure in 28 patients Diabetes was the only disease present which could explain the impaired liver function in the remaining 18 patients The hepatic dysfunction varied directly with diabetic control Diagnosis of cirrhosis and diabetes mellitus was made in 36 of 3,543 patients who were admitted to a Veterans Administration Hospital Thirty-one of the 36 patients were chronic alcoholics The diabetes preceded cirrhosis in 15 patients, while in 21 the reverse was true All except one of these 15 patients had been a heavy consumer of alcohol for many years There were six patients whose diabetes mellitus had been diagnosed five years or more before cirrhosis Diabetes was observed to be the only possible causative agent for the cirrhosis in only one patient, an incidence of 0 028 per cent Fourteen of the 21 patients whose diabetes preceded cirrhosis required insulin to control the hyperglycemia Six of the 15 patients whose cirrhosis preceded diabetes required insulin The incidence of hepatomegaly and fatty infiltration in adults with diabetes mellitus is low Hepatic dysfunction in diabetes mellitus is of low incidence but is transient and seldom leads to permanent damage

Archives of Otolaryngology, Chicago

52:323-512 (Sept) 1950

*Mechanism of Suffocation in Spinobulbar Poliomyelitis and Experiences with Operative Treatment A Sjoberg —p 323
*Tracheotomy in Poliomyelitis R J Strobel and N Canfield —p 341
Arteriovenous Aneurysm of Internal Carotid Artery in the Cavernous Sinus L M Freedman —p 351
Effect of Autonomic Denervation on Nasal Mucosa Interruption of Sympathetic and Parasympathetic Fibers A F Millonig H E Harris and W J Gardner —p 359
Hyaluronidase in Rhinoplasty M H Cottle, J A Weiss, E Pottorff and F Herzon —p 369
Meniere s Syndrome Proposed Classification and Differential Diagnosis *B Rachlis —p 373*
Syndrome of Bilateral Vestibular Paralysis and Its Occurrence from Streptomycin Therapy P Northington —p 380
*A Study of the Deafness Heritage in Otosclerosis S J Kopetzky —p *397*
Chemical Burns of the Oral Cavity and Esophagus A V Stumboff —p *419*
The Paranasal Sinuses S Salinger —p 427

Suffocation in Poliomyelitis.—Sjoberg discusses the enthusiasm for tracheotomy in bulbar poliomyelitis which has swept over the United States in recent years In Stockholm the problem became acute during 1949 when there were many cases of severe bulbar poliomyelitis The author agrees with the opinion prevailing in the United States that the majority of fatalities in the early stages of poliomyelitis are due to suffocation and not to circulatory paralysis The mortality rate for patients treated in Sweden with the respirator during the 12 year period 1934-1945 was 86 per cent (119 survived of 834) Of the 14 patients subjected to tracheotomy at Sjoberg's hospital, 12 survived Tracheotomy is indicated in the following five groups 1 Peripheral respiratory paresis with retention of secretion 2 Aspiration (of saliva and vomitus) in purely bulbar cranial nerve lesions (above all, in paralysis of the vagus) 3 Bilateral paralysis of the laryngeal abductors combined with bilateral paresis of the pharynx 4 Spinobulbar lesions, manifesting themselves in a bilateral paresis of the pharynx (plus, in certain cases, nuclear paresis of the accessory nerve plus injuries to the first and second cervical segments of the spinal cord). Suffocation in these cases is chiefly characterized by the angle, or rope dent symptom, which constitutes an alarm signal The patient risks being strangled by a contracture or tonus excess in his nonparalyzed antagonistic muscles, which draw the hyoid bone backward and upward If, in addition, a nuclear paresis of the accessory nerve occurs, the rope dent symptom is further accentuated, and the patient's condition is aggravated 5 Cases in which the operative treatment is applied prophylactically The respirator treatment may be harmful and can even hasten death by suffocation if broncho scopic suction with or without tracheotomy is not applied simultaneously Postural drainage with oxygen or an oxygen-carbon dioxide mixture (carbogen) is absolutely necessary During the first and sometimes even during the second week the fluid balance must be carefully controlled and the liquid administered only parenterally in isotonic or hypertonic form Dextran and blood transfusions proved effective in the initial shock condition which often appears in the hours following tracheotomy

Tracheotomy in Poliomyelitis—A total of 166 patients with poliomyelitis were admitted to the New Haven Community Hospital in 1949 Of these, 17 had bulbar poliomyelitis, and 10 of them were subjected to a tracheotomy Strobel and Canfield believe that tracheotomy should be considered whenever a patient in a respirator exhibits signs of bulbar involvement or shows persistent cyanosis or struggling Patients not in a respirator require therapeutic tracheotomy when they are unable to keep the airway free of secretions, as evidenced by moist rales, choking and cyanosis Most patients with bulbar involvement who are not in a respirator will complain of difficulty in swallowing. A prophylactic tracheotomy should be considered whenever early and progressive bulbar signs are present and before the patient has difficulty, or when a long siege in the respirator seems probable, even though no bulbar signs are present. A patient with severe respiratory paralysis may have difficulty handling pharyngeal mucus because of inability to cough effectively. A certain number of these prophylactic tracheotomies might be life-saving. However, it is impossible to forecast how many of the patients in a respirator will have enough difficulty to need a tracheotomy, and some needless tracheotomies might be done. In a desperately ill patient in need of a tracheotomy, it is probably more dangerous to delay the tracheotomy than to perform it. The authors admit that five of the 10 patients in whom they performed a tracheotomy died, but in none of these patients was death attributable to the operation. The tracheotomy was probably life-saving for every one who survived. Earlier tracheotomy in three of the five who died might have been life-saving.

Hereditary Deafness in Otosclerosis.—From an earlier study on 581 cases of deafness, Kopetzky concludes that a chemical abnormality in the blood is the evolutionary basis of the lesions of otosclerosis. In familial groups, biochemical changes in the blood were so similar that a study of the hereditary character of deafness in otosclerosis was begun. In one case, the parents were unaware of having any loss in hearing acuity; nevertheless, their blood showed that they carried a metabolic mechanism defect. They had transmitted this defect to their child, who was a congenital deaf-mute. The child had both pyruvemia and hypercholesteremia. The father had only pyruvemia, and the mother's blood showed both pyruvemia and hypercholesteremia. The hereditary character of deafness is discussed on the basis of 25 deaf-mutes, 5 severely deafened children and 25 children with limited hearing. The relations between the biochemical abnormalities in the blood and the cellular abnormality of the otic capsule in otosclerosis are discussed. Persons with congenital deafness have hereditary defects of carbohydrate metabolism which lead to otosclerotic lesions on the otic capsule in intrauterine life, or they carry in their blood the biochemical-pathological changes of otosclerosis, and lesions develop after birth. The blood biochemistry gives an explanation as to why the cellular pathological changes of the otic capsule must result. Heretofore, this explanation was impossible, although the evolution of the pathological picture was known. The author suggests a diagnostic triad which does not depend on any statement of the patient or his family concerning deafness in the family. He discusses the possibility of replacement therapy, to supply the essential items which are indicated by the presence of pyruvemia alone or pyruvemia and hypercholesteremia.

Archives of Physical Medicine, Chicago

31:557-612 (Sept.) 1950

Influence of Microwave Diathermy on Swelling and Trismus Resulting from Odontectomy. R. Q. Royer, K. G. Wakim, S. A. Lovestedt and F. H. Krusen.—p. 557.
*Sterilization of Water in Hydrotherapeutic Tank by Underwater Use of Ultraviolet Rays. H. Z. Jern and J. D. Currence.—p. 566.
Clinical Electromyography: Physiologic Basis, Instrumentation, Diagnostic Value. G. G. Hirschberg and A. S. Abramson.—p. 576.
Prevention of Ultraviolet Erythema by Topical Application of Pyribenzamine. B. B. Grynbaum, W. Bierman and A. Kurtin.—p. 587.
Transfer of Respirator Patients. C. W. Dail, E. Austin, O. L. Huddleston and others.—p. 592.
Educational Therapy in Rehabilitation of the Tuberculous. E. E. Gordon and E. C. Phillips.—p. 595.
Ambulation of Patients with Spastic Hemiplegia: Further Observations. L. J. Yamshon and C. C. Troensegaard.—p. 599.

Sterilization of Water in Hydrotherapeutic Tank by Ultraviolet Rays.—Jern and Currence say that, although ultraviolet rays have been used for the sterilization of drinking water and for the disinfection of swimming pools, they could find no record of the underwater use of ultraviolet rays as a sterilizing agent in hydrotherapeutic practice. They conducted studies to determine the efficacy of underwater ultraviolet rays in the disinfection of hydrotherapeutic tanks. Various organisms, such as Escherichia coli, Staphylococcus aureus, enterococci, psuedoanthrax bacilli and Trichophyton mentagrophytes were added to tank water in a test of the action of ultraviolet rays. Under conditions simulating hydrotherapeutic treatment, a considerable portion of the seeded organisms were destroyed prior to exposure to ultraviolet rays by a temperature of 44 C. by chlorine (0.06 to 0.2 parts per million of tank water) and by the water itself. In order to obtain a maximum survival of bacteria for an estimation of the true bactericidal power of ultraviolet rays, dechlorinization of water was accomplished by the addition of sodium thiosulfate or broth. Sodium thiosulfate appeared to be preferable to broth. Various numbers of the micro-organisms, up to 2,000,000 per milliliter of water, were subjected to 20 minutes of exposure to ultraviolet rays, with complete sterilization. The authors conclude that the underwater use of ultraviolet rays can be recommended as a reliable sterilizing procedure. For optimum effects the water should be simultaneously agitated to permit exposure to the rays of every particle of contaminated water.

Archives of Surgery, Chicago

61:387-592 (Sept.) 1950

*Sludged Blood Following Severe Thermal Burns. F. Brooks, L. R. Dragstedt, L. Warner and M. H. Knisely.—p. 387.
Postoperative Alterations in Coagulation Mechanism of Blood: Observations on Circulating Thromboplastin. R. Warren, M. O. Amdur, J. Belko and D. V. Baker.—p. 419.
*Prostatic Cancer: Further Investigation of Hormonal Relationships. H. Brendler, W. E. Chase and W. W. Scott.—p. 433.
*Carcinoma of Prostate Gland: Results of Conservative Management L. R. Reynolds, T. L. Schulte and H. J. Hammer.—p. 441.
Anatomic Study of Portal Vein and Its Main Branches. R. S. Gilfillan —p. 449.
Reconstruction of Bile Ducts with Isolated Segment of Jejunum: Experimental Study. C. K. Kirby and W. T. Fitts Jr.—p. 462.
Comminuted Fractures of Os Calcis: Choice of Treatment. E. O Geckeler.—p. 469.
Treatment of Mixed Tumors of Parotid Glands by Subtotal Parotidectomy. C. T. Klopp and T. Winship.—p. 477.
Management of Bleeding Peptic Ulcer. J. B. Holloway Jr., T. Armour Jr. and W. H. Proctor Jr.—p. 487.
Local and Systemic Effects of Heat and Cold in Rats. F. K. Safford Jr., J. R. Lisa and F. M. Allen.—p. 499.
Experiments on Local Hypothermia for Treatment of Burns and Frostbite. F. M. Allen and F. K. Safford Jr.—p. 515.
Pseudocysts of Pancreas; Total Excision: Report of Case. D. C. Collins. —p. 524.
Treatment of Post-Thrombotic Syndrome by Interruption of Superficial Femoral Vein. M. A. Cassel.—p. 540.
Allergic Reactions Following Intravenous Injection of Corn Sugar (Dextrose). T. G. Randolph, J. P. Rollins and C. K. Walter.—p. 554.
Adhesions Resulting from Removal of Serosa from Area of Bowel: Failure of "Oversewing" to Lower Incidence in Rat and Guinea Pig. J. W. Thomas and J. E. Rhoads.—p. 565.
Excretory Urography Versus Retrograde Urography: Ureteral Compression Technic. J. B. Beare and C. A. Wattenberg.—p. 568.
Present Day Methods of Disinfecting Skin: Survey of Disinfectants and Technics Currently Employed in Hospitals of United States and Canada. P. B. Price.—p. 583.
New Simplified Technic for Localization of Foreign Body. L. W. Breck and D. J. Maylahn.—p. 589.

Sludged Blood After Severe Burns.—In studying sludged blood following severe thermal burns, Brooks and his associates used rabbits and dogs as experimental animals. Observations were also made on burned patients. It was found that there are definite physical alterations in the circulating blood after burns. There is intravascular agglutination of red blood cells into rigid, basic masses. These clumps are usually first seen in the postcapillary venules. White blood cells stick to the vessel walls soon after the burn. Increased plasma viscosity is evidenced by the progressive slowing of the rate at which clumps of red cells turn over as they flow along, by the loss of laminar flow and by the absence of immediate, homogeneous mixing of venous streams as they join. The flow rate decreases to as little as one-third the preburn rate. Reduced rates of flow result in sacculation and tortuosity of vessels and in multiple, small thromboses of small arterioles and venules. This is accompanied with increased anoxia of surrounding tissues. There is leakage of fluid through vessel walls. Red blood cells are present extravascularly, without direct evidence of ruptured vessels. Small hemorrhages occur, and red blood cells have been seen in the phagocytes of spleen, liver and bone marrow after recent burns. The authors discuss mechanisms by which sludging changes following burn may lead to shock. There is no evidence to support the hypothesis that histamine is the "toxin" of burn shock. The evidence presented does not rule out the possibility that some toxin exists but strongly indicates that physical changes in the circulating blood may be the same as what previously has been called "toxic effect." The extravascular (diapedesis and hemorrhage), intravascular (in "thrombi") and phagocytic loss of red blood cells from the circulating blood which accompanies the sludging changes following burn may be an important factor in postburn anemia. The chemical and/or immunologic factors involved in the initiation of the sludging process and in the depositing of the sticky coating on red blood cells after burn have yet to be determined. The sludging process must be investigated before one can determine a reasonable and adequate treatment for burns.

Prostatic Cancer: Further Investigation of Hormonal Relation.—Brendler and his collaborators describe the clinical and laboratory observations in three patients with advanced prostatic cancer who received testosterone propionate. The dose varied from 25 to 100 mg. daily, and the drug was given for periods up to two months. Two of the three patients had extensive secondary involvement of bone, and one had previously been castrated and had received estrogen. The authors were impressed with the general improvement shown by the two patients with metastatic prostatic cancer while they received testosterone. Pain in the bones was considerably lessened in the patient who complained of this initially and did not develop in either of the other two. As evidenced in roentgenograms, metastasis did not develop in the patient initially free from it, nor did a remarkable change occur in the two patients with metastasis. The serum acid phosphatase showed a further increase in the two patients with osseous metastasis but not in the one without it. Perhaps occult bony metastasis can be diagnosed by observation of the response of the serum acid phosphatase to a short course of androgen injections. Further investigation of the role of androgens in prostatic cancer is warranted. In cases of metastatic cancer of the breast in the female, both androgens and estrogens have been used, androgens apparently exerting a more beneficial effect in younger women and estrogens in the older age group. Androgens appear to affect osseous metastasis predominantly, whereas estrogens primarily influence the soft tissue metastasis and the primary growth itself. Perhaps an analogous situation exists with reference to prostatic cancer.

Carcinoma of the Prostate Gland: Results of Conservative Management.—Reynolds and associates found that conservative management of 104 patients having carcinoma of the prostate gave encouraging results. The patients were seen at frequent intervals and treated with orally administered, enteric-coated diethylstilbestrol. Osseous metastasis was disclosed in 39. Most patients had an advanced neoplasm when first examined. Originally the daily dose was 3 mg. or less. For the past five years, 5 mg. of the drug has been given once daily. Dosage was increased if necessary, and up to 50 mg. was given daily. In some instances the dose was reduced to 2 or 3 mg. daily, after prolonged therapy. The patients who had only slight or no urinary obstruction were treated only with antiandrogenic hormone. In some patients the drug was used in conjunction with indwelling urethral catheter drainage, which was continued for two weeks to four months. Nine patients regained their ability to void; another six patients were unable to void and were subsequently relieved by transurethral resection. This method of managing elderly patients is highly satisfactory because, if the need for transurethral resection becomes evident later, the procedure can be performed when the patient is a better surgical risk than when first seen. Resection was performed in 56 patients. A second resection was required because of regrowth of malignant tissue and subsequent urinary difficulty in 13 patients. Five of these needed a third operation, which made a total of 74 transurethral resections. There was one surgical death. There were two patients in whom thrombophlebitis developed postoperatively and another two patients who had persistent stress incontinence. The authors believe that the patients who had stress incontinence were subjected to a resection that was too radical. The authors subsequently learned to depend more on the antiandrogenic hormone treatment. Of the 104 patients, 81 are alive, 18 are dead and 5 have not been traced. The average survival time of 81 living patients was 34.7 months, for those treated more than one year, 41.1 months. Of the total of 104 patients, 22 survived more than five years, and of these, 16 are still living. The authors conclude that prolonged control of prostatic cancer can be accomplished by the oral administration of antiandrogenic substance.

Bulletin of Johns Hopkins Hospital, Baltimore

87:171-254 (Sept.) 1950

*Studies of Terramycin, in Vivo and in Vitro. E. A. Bliss, P. T. Warth, C. A. Chandler and P. H. Long.—p. 171.
Phosphatase Activity of Cartilage and Periosteum with Various Substrates. R. H. Follis Jr.—p. 181.
Ability of ACTH and Cortisone to Alter Delayed Type Bacterial Hypersensitivity. J. B. Long and C. B. Favour.—p. 186.
Studies of Metabolism of Human Placenta: II. Oxygen Consumption and Anaerobic Glycolysis in Relation to Aging and Severe Toxemia. L. M. Hellman, B. A. Harris Jr. and M. C. Andrews.—p. 203.
Correlation Between Ear Thickness and Saturation Readings of Millikan Oximeter. R. Penneys.—p. 215.
Effect of Posterior Pituitary Extract and Smoking on Water, Sodium and Chloride Excretion in Normal Subjects and in Patients with Congestive Cardiac Failure. B. C. Sinclair-Smith, J. Sisson, A. A. Kattus and others.—p. 221.
Method for Recording Ballistocardiographic Vectors: Preliminary Report. W. R. Scarborough, J. Beser, S. A. Talbot and others.—p. 235.

Studies on Terramycin.—Terramycin is an amphoteric substance forming crystalline hydrochloride and sodium salts; it does not deteriorate during long standing at room temperature at a *p*H under 5; it is active in vitro against staphylococci, Bacillus subtilis and a number of gram-negative bacilli. Bliss and her associates found terramycin effective in the control of infections induced in mice with hemolytic streptococci, pneumococci, Klebsiella pneumoniae, Salmonella typhosa and other organisms. Samples of terramycin hydrochloride were tested at the laboratory of the Johns Hopkins University School of Medicine. The sodium salt was compared with the hydrochloride in a few in vitro tests. As there was no difference in the behavior of the two, the sodium salt was not tested in vivo. The authors found that terramycin inhibited the growth of most of the bacteria tested at slightly lower concentrations than aureomycin. Oral administration of a single dose of terramycin hydrochloride to two human subjects resulted in measurable levels of the drug in the blood and urine for at least 24 hours. Terramycin was more effective than aureomycin in the therapy of K. pneumoniae and Hemophilus influenzae infections in mice but was less effective in pneumococcic and hemolytic streptococcic infections.

California Medicine, San Francisco

73:209-302 (Sept.) 1950

*Surgical Treatment of Portal Hypertension. W. P. Longmire Jr.—p. 209.
Use of Aerosol Penicillin and Streptomycin in Bronchopulmonary Infections. J. E. Farber and J. Ross.—p. 214.
Preoperative and Postoperative Care of Acute Arterial Obstruction. N. E. Freeman and R. S. Gilfillan.—p. 218.
Relation of Adrenal Cortex to Immunizing Mechanisms. A. White.—p. 221.
Care of Neglected Burn Patient. G. V. Webster.—p. 225.
*Comparative Concurrent Results of Vagotomy Procedures, Conventional Gastric Resection and Hemigastrectomy with Subtotal Vagotomy. G. A. Stevens, C. S. Kipen and W. L. Ross.—p. 229.
Indications for Different Approaches to Prostatectomy. R. W. Barnes.—p. 232.
Atopic Dermatitis—Etiology and Clinical Management. L. Tuft.—p. 233.
Intracranial Angiography in Treatment of Cerebral Vascular Accidents: Reports of Cases and Review of Literature. F. W. Lusignan and G. O. Cross.—p. 240.
Carcinoma of Cervix. G. Beckstrand and S. W. Ellery.—p. 248.
Hematologic Features Which May Influence Rh Immunization. S. P. Lucia and M. L. Hunt.—p. 250.
Precancerous Dermatoses. S. Ayres Jr.—p. 254.
Cancer of Skin. H. J. Templeton.—p. 256.
Other Malignant Conditions Involving the Skin. N. P. Anderson.—p. 258.

Surgical Treatment of Portal Hypertension.—Longmire performed portacaval shunt operations on 15 of 18 patients who were treated surgically for portal hypertension at the Wadsworth Veterans Hospital. The shunt was established by splenorenal anastomosis in eight of the 15 patients. Two of the eight patients are well; four are considered improved, and two died. The portal vein was anastomosed to the side of the inferior vena cava in the remaining seven patients. Two of these patients are considered improved; one is unimproved, and four died. Total gastrectomy and esophagojejunostomy was performed for hemorrhage on one patient who has had no further bleeding in the three years since the operation. Two patients were treated by splenectomy alone because a satisfactory vein for anastomosis could not be found in the splenic pedicle. One of them showed improvement over a short postoperative period, while the other was unimproved. Of eight patients with intrahepatic block who were subjected to portacaval shunt, four are improved, one is unimproved and three died. Of 10 patients with extrahepatic block, six are improved postoperatively, one is unimproved and three died. Survival time of the six patients who died after portacaval shunt varied from three days to four months. Death resulted from thrombosis at the site of anastomosis in two instances, from hepatorenal failure in one, from hepatic failure in one, from extensive pancreatic necrosis in one and from closure of anastomosis in one.

Results of Gastric Resection and Vagotomy in Duodenal Ulcer.—Stevens and co-workers report on 132 patients with duodenal ulcer who were subjected to surgical treatment. The postoperative follow-up period was approximately two years. So-called complete vagotomy, with or without supplemental gastroenterostomy, was performed on 43 patients. Conventional gastric resection was done in 47 patients. Hemigastrectomy and so-called subtotal vagotomy were performed on the remaining 42 patients. Good results were obtained in 33 patients (78 per cent) of the first group, in 42 (90 per cent) of the second group and in 38 (90 per cent) of the third group. Results were unsatisfactory in 10 patients (22 per cent) of the first group, in five (10 per cent) of the second group and in four (10 per cent) of the third group. There were no deaths following gastric resection or hemigastrectomy with subtotal vagotomy. There was one operative fatality from perforation of the esophagus, following vagotomy. Stomal ulcer developed in one patient following gastric resection, in one following hemigastrectomy with subtotal vagotomy and in three following vagotomy and gastroenterostomy. Histamine-induced secretion of gastric acid was greatly reduced after adequate gastric resection and after hemigastrectomy with partial vagotomy, whereas this effect was relatively minimal after vagotomy. There was no instance of gastric retention in patients who had undergone gastric resection and hemigastrectomy or in those who had had partial vagotomy. Of patients subjected to a vagotomy alone, 70 per cent had six to 24-hour retention. The incidence of retention after gastroenterostomy and vagotomy was 17 per cent. Results obtained with gastric resection and with hemigastrectomy with subtotal vagotomy were better than those obtained with vagotomy alone.

Delaware State Medical Journal, Wilmington

22:163-238 (Aug.) 1950. **Partial Index**

New State Facilities for Criminally Inclined Psychopaths in Delaware. M. A. Tarumianz.—p. 163.
Dynamic Concepts in Psychiatry. E. A. Strecker.—p. 167.
Diagnosis and Treatment of Epilepsy. B. J. Alpers.—p. 178.
Effects of Early and Late Diagnosis on Results After Brain Tumor Surgery. F. E. Nulsen.—p. 187.
Personality, Physique and Disease. F. M. Harrison.—p. 191.
Clinical Evaluations of Psychopathic Personalities. F. A. Freyhan. —p. 196.
Mental Hygiene Clinic Goes to Schools. H. S. Howard.—p. 200.
Mental Factors in General Medicine and Surgery. A. W. Gottschall. —p. 202.
Emotional Catharsis, Psychotherapeutic Method for the General Practitioner. G. DeCherney.—p. 208.
Child Guidance at Governor Bacon Health Center: Seizure Control Unit. R. E. Reed.—p. 210.
Psychoses in the Negro: Preliminary Study. S. P. Ivins.—p. 212.
Rationale for In-Patient Treatment of Emotionally Disturbed Children. C. F. Settlage.—p. 213.
Pediatric Activities at the Governor Bacon Health Center. L. Diamond. —p. 216.
Bilateral Prefrontal Lobotomy: Case Report. C. L. R. Souder.—p. 218.
Insulin Therapy: Evaluation of 47 Cases. M. Wiederlight.—p. 220.
Concept of Psychopathic Personality. O. Chardiet.—p. 221.

Endocrinology, Springfield, Ill.

47:75-138 (Aug.) 1950

Role of Estrogen in Estrogen-Relaxin Relationship in Symphyseal Relaxation. R. V. Talmage.—p. 75.
Decrease in Plasma Levels of Endogenous Progesterone During Renal Passage. T. R. Forbes, C. W. Hooker and C. A. Pfeiffer.—p. 83.
Metabolism of Testosterone by Liver Tissue of Niacin, Tryptophan of Thiamine Deficient Rats. M. J. Bryson, L. T. Samuels and H. C. Goldthorpe.—p. 89.
Direct Action of Male Sex Hormone on Adrenal Cortex. L. A. Zizine, M. E. Simpson and H. M. Evans.—p. 97.
Mechanisms of Desoxycorticosterone Action: Effects of Water-Soluble Glycoside on Human Circulatory and Renal Functions. D. M. Green, A. D. Johnson, W. E. Bridges and others.—p. 102.
Utilization of Radioactive Lipides by Normal and Hypophysectomized Rats. R. P. Geyer, J. H. Shaw and R. O. Greep.—p. 108.
Some Effects of Purified Pituitary Growth Hormone on Carbohydrate Metabolism in Rat. A. E. Milman and J. A. Russell.—p. 114.

GP (J. Am. Acad. of Gen. Practice), Kansas City, Mo.

2:31-58 (Sept.) 1950

Common Eye Changes. V. Derrick.—p. 31.
Folic Acid and Vitamin B_{12} in Anemia. T. D. Spies, F. Milanes and A. Rebordeo.—p. 27.
After Care of the Hemiplegic. D. A. Covalt.—p. 45.
Pollen Injections During Hay Fever Season. G. L. Waldbott.—p. 49.
Hyperventilation Syndrome. O. B. Hull.—p. 53.

Illinois Medical Journal, Chicago

98:161-216 (Sept.) 1950

Convalescent Poliomyelitis. R. L. Bennett.—p. 174.
Public Health Aspects of Infantile Paralysis. E. A. Piszczek.—p. 179
*Problems in Differential Diagnosis of Poliomyelitis. H. M. Woodcock G. M. Cline and J. B. Richmond.—p. 183.
Poliomyelitis: Clinical Pathological Correlation. M. Appel.—p. 190.
Penicillin in Treatment of Congenital Syphilis. N. G. Shaw.—p. 193.
Protruding Ears: Correction by Plastic Surgery. O. J. Becker.—p. 196
Sections vs. Smears in Study of Bone Marrow. M. Block.—p. 202.
Pitfalls in Colon Surgery. R. W. McNealy and F. D. Wolfe.—p. 205

Differential Diagnosis of Poliomyelitis.—According to Woodcock and his co-workers early diagnosis in poliomyelitis has prompted physicians to "err on the side of safety" by diagnosing poliomyelitis when suggestive symptoms occur. They present data accumulated during the summer and fall of 1949 in a diagnostic and treatment center for poliomyelitis. A total of 140 patients referred by physicians were admitted with a tentative diagnosis of poliomyelitis. Of these, 110 (78.5 per cent) were found to have poliomyelitis. Almost any child with a gait disturbance or loss of function of an extremity was suspected of having poliomyelitis. The following manifestations should suggest that other diagnoses be considered: (1) severe pain, localized tenderness, or swelling of affected extremities (2) pronounced lymphadenitis or lymph node enlargement, (3) fever, particularly of a septic nature, (4) a critically ill, irrational or comatose state, (5) dehydration, (6) convulsions, (7) prolonged illness with subsequent paralysis and regional sensory changes, (8) upper motor neurone lesions and (9) ataxia. The authors list 58 entities that have been confused with poliomyelitis These included mastoiditis, pneumonia, mumps, rheumatic fever osteomyelitis, torticollis, retropharyngeal, cervical or brain abscesses, epilepsy, herpes zoster, cerebral malaria, encephalitis resulting from vaccination, postdiphtheritic neuritis, multiple sclerosis, transverse myelitis, various forms of meningitis, infectious polyneuritis and Coxsackie virus infections. The hazards of exposing children in whom the diagnosis is unconfirmed necessitate adequate isolation facilities pending the establishment of a definitive diagnosis in any center caring for patients with poliomyelitis.

Industrial Medicine and Surgery, Chicago

19:397-452 (Sept.) 1950. **Partial Index**

Experience of General Motors in Developing New Techniques for Selection, Placement and Follow-Up of Employees: Panel Discussion. G. A. Jacoby.—p. 397.
Selective Placement in Industry. M. R. Burnell.—p. 399.
Interviewing Techniques. A. A. Hendrix.—p. 401.
Employment Testing. O. L. Crissey.—p. 403.
Evaluation of the Employee's Attitude. W. H. Harvey.—p. 409.
Antihistamine Chemicals in Treatment of Common Cold: Report on a Twenty-Seven Month Study. W. L. Baughn.—p. 413.
Accident Proneness: A Serious Industrial Problem: What Can the Industrial Physician Do About It? E. Wolff.—p. 419.
Present Position and Future of British Industrial Medicine. A. R. Thompson.—p. 433.
*Relationship Between Truck and Tractor Driving and Disorders of the Spine and Supporting Structures. W. I. Fishbein and L. C. Salter. —p. 444.

Truck and Tractor Driving and Disorders of the Spine.—The survey on which Fishbein and Salter base this report was undertaken to throw light on the relationship between disorders of the spine and supporting structures and the driving of trucks and tractors. A questionnaire, so worded as to avoid specific reference to the seating factor, was sent to all the orthopedic surgeons in the United States. To the 1,474 questionnaires mailed out, replies were received from 378, or about one fourth. The widespread interest in the subject is indicated by the fact that 327 requested a copy of the report. Question 3 read: "Which of the following disorders do you believe may have been caused in whole or in part by driving trucks or tractors?" The disorders listed and the number of positive answers were as follows: spinal injuries 25, herniated disks 95, osteoarthritis 103, spondylitis 41, subluxation 20, sacroiliac strain 72, traumatic fibrositis 109 and coccygodynia 82. Thirty-seven disorders in addition to those listed were named in the replies. These included lumbosacral strain, pilonidal sinus or cyst, sciatic neuritis, low back pain, lumbosacral arthritis, fibrositis, myositis and mechanical backache. These authors feel that, with more than 10,000,000 trucks and tractors being operated in the United States, exclusive of those in the Armed Forces, the health hazards of driving such vehicles constitute a major medical problem that have not received the attention and study they deserve either by the medical profession or the manufacturers of such equipment

Iowa State Medical Society Journal, Des Moines

40:389-434 (Aug.) 1950

Allergy in General Practice of Medicine J H Black—p 389
Nasal Allergy. G W. Bates—p 392
Status of Antihistaminic Therapy. G F Harkness—p 395
Tonsillectomy and Poliomyelitis—Southwestern Iowa, 1948 1949 J V Treynor.—p. 400

40:435-470 (Sept.) 1950

Gallbladder and Common Duct Problem as Seen by General Practitioner and General Surgeon. R. L Sanders—p 435
Present Day Anesthesiologist. S. J. Martin—p 438
Psychotherapy in General Practice J S Gottlieb—p 442
Some Causes and Treatment of Epistaxis W R Lee—p 446
Physician Views State Vocational Rehabilitation Division A S Price—p 449.
The Tumor Clinic and the Physician E G Zimmerer—p 450

Journal of Applied Physiology, Washington, D. C.

3:1-54 (July) 1950

Electrocardiography and Cardiac Physiology J S Robb p 1
Device for Continuous Recording of Concentration of Evans Blue Dye in Whole Blood and Its Application to Determination of Cardiac Output A. Friedlich, R. Heimbecker and R J Bing—p 12.
Human Heat Production in Relation to Body Weight and Body Surface III Inapplicability of Surface Law on Fat Men of Tropical Zone IV. General Interpretation of Climatic Influence on Metabolism P. Eneas Galvão—p 21
Influence of Antihistaminics on Respiratory Response to Hypoxia W L Burkhardt, B R Eastman and H. B. Hale—p 29
Measurement of Pathological Pain in Distinction to Experimental Pain A S Keats, H. K. Beecher and F. C Mosteller—p 35
Value of Different Test Foods in Estimating Masticatory Ability A Yurkstas and R S Manly—p 45

Journal of Bacteriology, Baltimore

60:107-214 (Aug) 1950. Partial Index

Relationship of Biotin to Coenzyme of Certain Amino Acid Deaminases J F Christman and H. C Lichstein—p 107
Oxidative Assimilation of Glucose by Escherichia Coli B V Siegel and C E Clifton—p 113.
Artifacts, with Other Nonspecific Appearances Resembling Virus Particles, and So Called Filamentous Forms of Influenza and Fowl Pest Viruses in Human Skin Tissue Fluid Examined with Electron Microscope J. J Angulo, J. H. L Watson and J Oliarte—p 129
Effects of Aureomycin and of Penicillin Against Erysipelothrix Rhusiopathiae In Vitro and In Vivo J. E Prier and J O Alberts—p 139
Evaluation of Oral, Intravenous and Intramuscular Aureomycin and Correlation Between in Vivo and in Vitro Activity M Klein, S E Schorr, S Tashman and A. D. Hunt Jr—p 159
Effect of Heparin on Growth of Bacteria and Yeasts J R Warren and F. Graham—p 171
Investigations of Fecal Bacteria of Mice, with Reference to Presence of Mouse Encephalomyelitis Virus. M Shaw and G Dalldorf—p 175
Production of Acetate from Fatty Acids by Neurospora J Lein and P S Lein—p 185.

Journal of Experimental Medicine, New York

92:191-298 (Sept.) 1950

Role of Non Precipitating Antibodies in Passive Sensitization of Human Skin by Rabbit Anti Ovalbumin W. B Sherman, A E O Menzel and P M Seebohm—p. 191.
Crystallization and Serological Differentiation of Streptococci Proteinase and Its Precursor. S D Elliott—p 201
Purification and Properties of Streptolysin S B Cinader and L Pillemer—p 219.
Studies on Life Cycle of Spirochetes E D DeLamater, R. H Wiggall and M Haines—p 239
Studies on Acute Disseminated Encephalomyelitis Produced Experimentally in Rhesus Monkeys. V. Complement Fixing Antibodies C E Lumsden, E A Kabat, A. Wolf and A. E Bezer.—p 253
Studies on Agent of Infectious Hepatitis W Henle, S Harris, G Henle and others—p 271

Journal of Nervous and Mental Disease, New York

112:187-280 (Sept) 1950

Studies in Epilepsy. Significance of "Spontaneous" Abnormalities in Brain Wave Patterns as Observed During Interview with Epileptic Patients W. Barker, S Burgwin and D J. Simons—p. 187.
Mild Manic Depressive Psychosis, Depressive Type: Psychiatric and Clinical Significance J. D Campbell—p 206
Remission as Feature in Torulosis H N. Willard and H G Wolff—p 237.
Amnesia for Left Limbs and Loss of Interest and Attention in Left Fields of Vision K. E Frantz—p 240
*Sodium Amytal as Causative Factor in Some Cases of Prolonged Insulin Coma R. B. White, R M Gilliland and J. R Ewalt—p 245.

Amobarbital Sodium and Prolonged Insulin Coma.—White and his collaborators say that patients in whom subshock or shock has been produced by insulin may require some rapidly acting hypnotic for sedation or for facilitation of therapeutic interviews. Because amobarbital (amytal®) sodium is commonly used for these purposes, they call attention to possible dangers associated with the combined use of these two drugs. They cite three patients of their own and a patient reported by Kalichman in 1948 in whom a critical condition developed when amobarbital sodium was given shortly after insulin shock. The first patient remained in a critical condition for 24 hours. He showed the usual signs of prolonged coma, including hyperpyrexia, repeated clonic spasms and stertorous breathing. Two patients had signs of prolonged coma until the third and fifth postcoma days. The authors suggest the following possible explanations of the difficulties observed: (1) masking of the signs of hypoglycemia by the amobarbital sodium, (2) insufficient precaution and care by the staff and (3) possible dangerous synergism between amobarbital sodium and insulin. Evidence implicates the barbiturates as a contributing agent in increasing the likelihood of prolonged coma when insulin and barbiturates are used simultaneously The authors recommend increased caution in the simultaneous use of these two drugs.

Journal of Urology, Baltimore

64:441-540 (Sept.) 1950

Not By Medicine Alone. C. Rusche—p 441
Focal Pyelonephritis: Case of Severe Hematuria H C Harlin, L N Foster and C P. Armstrong—p 445
Congenital Unilateral Ectopic Kidney. Report of Two Cases C. J Hawes—p 453
Ureteral Implantation: I. Experiments on Surgical Principles Involved in Open Submucosal Method of Uretero Intestinal Anastomosis F. Hinman Jr. and F Hinman—p 457
*Diagnosis of Bladder Tumor N E Berry and J D Hamilton—p 464
Treatment of Infiltrating Carcinoma of Bladder by "Retrograde Method of Interstitial Radiation" T B Wayman—p 469.
Diagnostic Value of Lacunar Cystography E Perez Castro—p 484
Adenocarcinoma of Urachus Involving Bladder and Abdominal Wall M. J Loeb—p 499
Mucinous Adenocarcinoma Arising in Urachal Cyst and Involving Bladder C G Bandler and P. R Roen—p 504
Leiomyoma of Prostate Report of Case C P Gray and G J. Thompson—p 511
Polyorchidism Case Report P G Smith, A T Evans and G L Suder—p 515
Feminizing Testis Tumors L G Lewis and C G Stockard—p 518
Massive Hematocele Threatening Life by Exsanguination J. S. Cowdery, E S Gault and K B Conger—p 524
Concomitant Medical Conditions in Urologic Surgery N. O Brink and C H Peters—p 529
Simple Rotatable Electrotome J J Nugent—p. 534
Cutaneous Bridges for Skin Ureterostomy Retention Catheters S. Carleton and G Nagamatsu—p 537.

Diagnosis of Bladder Tumor.—Berry and Hamilton say that, in cancer of the bladder, the exact nature and extent of a lesion must be determined before operation. They agree with Milner that a biopsy specimen obtained by the resectoscope, properly taken and correctly prepared, gives accurate information on bladder tumors and compares favorably with those taken at operation. The taking of a biopsy specimen should be carefully planned and meticulously carried out. One piece of tissue is rarely enough. Sections should be taken to show not only the papillary portion of a tumor but its base and, in some cases, the surrounding tissue as well. The tissue fragments must be sectioned so that the mucosal surface, submucosa and muscle are shown The surface to be cut is painted with merbromin, which is applied with a swab The merbromin is not removed by fixation and dehydration and does not interfere with staining of the sections If the surgeon does not mark the surface to be cut, then he must show the pathologist how the specimen should be embedded, because, in many cases, if the biopsy is small, it is impossible to tell one surface from another after fixation in formalin. Accurate preoperative diagnosis of tumors of the bladder is possible in almost every case with the information obtained by cystoscopic examination, resectoscope biopsy and bimanual examination.

J. Venereal Disease Information, Washington, D. C.

31:225-250 (Sept.) 1950

Measurement of Trend of Syphilis in Mississippi. A. L. Gray, L. J. Usilton and A. P. Iskrant.—p. 225.
Ohio National Guard Blood-Testing Program. C. R. Freeble Jr., E. O. Wright, J. F. Donohue and J. B. Bolin.—p. 231.
*Treatment of Early Syphilis with Three Injections of Penicillin and with One Injection of Penicillin. II. R. D. Wright, F. P. Nicholson and R. C. Arnold.—p. 235.

Treatment of Early Syphilis.—Wright and his co-workers report on studies undertaken at the Venereal Disease Research Laboratory to determine the results of administration of varying amounts of procaine penicillin G. Average penicillin levels of patients recently treated with one-injection and three-injection schedules are presented. Post-treatment observations for more than a year prove that a single injection of 300,000 units of procaine penicillin G in peanut oil containing 2 per cent of aluminum monostearate does not provide an optimum cure rate in early syphilis. The schedule of 600,000 units daily for three days offers an effective regimen for the ambulatory treatment of early syphilis.

Michigan State Medical Society Journal, Lansing

49:881-1008 (Aug.) 1950

Manipulative Treatment of Low Back Pain. H. J. Schaubel.—p. 913.
Physical Medicine and Rehabilitation in Management of Hemiplegia in Adult. M. K. Newman and L. Cohen.—p. 917.
Occupational Therapy in Physical Medicine. B. Jewett and M. K. Newman.—p. 923.
Disruption of Vaginal Wound with Evisceration: Eighteen Months Following Vaginal Hysterectomy. C. E. Dunn.—p. 925.
General Practitioner Visits National Health Doctor. R. E. Clark.—p. 928.
Teratoma of Ovary in Child. C. D. Benson and H. E. Fulton.—p. 932.
The Duodenal Stump. W. W. MacGregor.—p. 935.
Multiple Sclerosis. G. Steiner.—p. 938.

Military Surgeon, Washington, D. C.

107:89-170 (Aug.) 1950. **Partial Index**

Blood Transfusion Experience of the Veterans Administration, July 1, 1948-July 1, 1949. G. R. Callender and R. T. York.—p. 89.
Procedure in Clinical Research. C. C. Shaw and A. P. Webster.—p. 92.
Tuberculosis Control Program of the U. S. Veterans Administration. L. V. Schneider.—p. 97.
**Poliomyelitis—An Hypothesis of Its Etiology.* J. G. Cumming.—p. 102.
Recent Trends in Prostatic Surgery. A. J. Leader.—p. 108.
Polyphasic Surgery. W. P. Kleitsch.—p. 117.
Tests to Determine Suitability of Burnt Coral as a Dentifrice. M. G. Wheatcroft, C. A. Schlack and B. L. Taylor.—p. 122.
Ano-Rectal Fibrosis. N. B. Jaffe.—p. 129.
Evaluation of Oral Priscoline as an Antipruritic Agent. L. Wirth.—p. 131.

107:*175-260* (Sept.) *1950.* **Partial Index**

Etiology, Symptomatology, and Therapy of Aphthous Stomatitis. V. H. Dietz.—p. 175.
Minor Hemorrhages of Late Pregnancy. F. B. Smith.—p. 185.
Preventive Medicine in Austria: A Post War Report. P. R. Beckjord.—p. 190.
Toxic Hepatitis Presumably Produced by Massive Prolonged Ingestion of Atabrine: Case Report with Autopsy Findings. W. L. Craddock.—p. 199.
Tantalum Gauze Hernioplasty. W. P. Kleitsch.—p. 201.
Tularemia: Ulcero-Glandular Type with Pneumonia. D. H. Koonce.—p. 204.

Poliomyelitis: Hypothesis of Its Etiology.—Cumming presents evidence that poliomyelitis is the result of a carrier state and of autoinoculation of nerve tissue through a wound. He points out similarities between rabies and poliomyelitis. First, both are neurotropic; second, for the disease to occur, there must be disruption or severing of nerve fibers, and the virus of the saliva-rabid animal or poliomyelitis carrier must have sufficient concentration to make direct contact with the axon protoplasm of the disrupted nerve fibers; third, the pathological process of both is limited to the central nervous system; fourth, occurrence of the disease is rare in proportion to the number of wound exposures, and, fifth, there is no generalized inflammatory involvement at the portal of entry in either disease. Rabies virus is strictly neurotropic, since it has no phase of multiplication except in nerve tissue. It must be transmitted from nerve tissue to nerve tissue, with only a brief passive salivary phase. Poliomyelitis virus, on the other hand, has an extraneural multiplication or growth phase. It is found in the oropharynx, along the intestinal canal and in alvine discharges. Hence, it is propagated by dissemination of the virus from person to person by direct and indirect contact. In a poliomyelitis outbreak in 1945, 59 patients were studied with regard to oral and surface injuries. Twenty-one had a history of oral injuries and 33 of surface injuries within four weeks of the onset of symptoms—a 92 per cent injury rate. The control of poliomyelitis involves first the prevention of the spread of virus from person to person. This requires the same measures of personal hygiene and sanitation which are applicable to the common contact infections. Cleansing of accidental wounds, which serve as portals of entry to severed nerve fibers, is the second important factor in prevention of the autoinoculation of the virus of poliomyelitis.

Minnesota Medicine, St. Paul

33:857-960 (Sept.) 1950

Medical Practice on Level Four. F. J. Elias.—p. 877.
Surgical Treatment of Mitral Heart Disease. I. D. Baronofsky and J. F. Briggs.—p. 881.
Significance of Isolated Pulmonary Nodule. D. V. Sharp and T. J. Kinsella.—p. 886.
Clinical Detection of Pulmonary Emphysema from Respiratory Tracings. P. H. Soucheray.—p. 889.
Respiratory Allergies in Children. L. S. Nelson and A. V. Stoesser.—p. 893.
Cancer of Large Bowel. H. Fisketti.—p. 897.
*Berylliosis: Brief Discussion and Presentation of Case with Pulmonary, Digital and Axillary Node Involvement. R. A. Nachtwey, M. B. Dockerty and C. H. Hodgson.—p. 904.
Benign Tumors, Nevi and Precanceroses. C. W. Laymon.—p. 908.

Berylliosis.—Nachtwey and his associates summarize the present status of knowledge on berylliosis and report a man, aged 35, who was in the electrical business and who had worked with fluorescent lamps, blowing the glass and coating the tubes. He had a nonproductive cough for many years. During the fall of 1948 he noticed dyspnea on exertion and fatigue. He also had bilateral thoracic pain of pleuritic nature. For several months before coming to the Mayo Clinic he had noticed slight edema of the ankles. Diuretics had been administered at home without appreciable effect on the edema. Examination revealed persistent fine rales over the lower two thirds of both lung fields. At the base of the nail on the left fourth finger there was a healed scar, which the patient said was the result of a lesion which would occasionally swell, drain and then heal over. He thought this lesion had followed a cut by a piece of fluorescent glass. An abnormally enlarged lymph node was found in the left axillary space. This node was removed in April 1949. Microscopic examination revealed that it was a granuloma, and spectrographic analysis disclosed beryllium. The patient was advised to avoid all contact with beryllium powder or fumes and to avoid overexertion. The authors stress that, because berylliosis is an uncommon disorder, its presence is not likely to be suspected. Failure to recognize the cause of the trouble and failure to remove the patient from further exposure may result in irreparable damage to his health or cause his death.

Nebraska State Medical Journal, *Lincoln*

35:273-304 (Sept.) 1950

Functional Disturbances Encountered in Gynecic Practice. W. R. Cooke.—p. 275.
Fractures Treated Conservatively. W. R. Hamsa and L. S. Campbell—p. 282.
The Dentists' Viewpoint. W. P. Higgins.—p. 285.
Lumbar Sympathectomy (Report of Fifty-Five Cases from Kansas City General Hospital). G. N. Johnson and F. I. Wilson.—p. 286.
*Preliminary Report on Use of Terramycin in Pneumonia. P. T. Pratt.—p. 294.

Terramycin in Pneumonia.—Pratt reports a Negro woman, aged 27, in her sixth month of pregnancy. Radiologic examination revealed an irregular area of consolidation in the lower lobe of the left lung. This appeared to be segmental pneumonia, involving the medial portion of the left lower lobe. The patient was given 500 mg. of terramycin hydrochloride orally every six hours, starting at 5 p. m. on April 25, 1950. She was given nasal oxygen throughout the night and 1 grain (60 mg.) of codeine phosphate every four hours for chest pain. The next morning her temperature dropped to 98.2 F., the pulse rate was 100, respirations 26 and the fetal heart rate 136. The chest pain was nearly gone. The cough was decreased and the sputum no longer blood tinged. The condition of the chest was unchanged. The patient stated that she felt well. The oxygen and the codeine were discontinued and were not used throughout the remainder of the hospital stay. Roentgen examination of the chest on April 27, 1950, revealed no significant change, but definite clearing of the area of consolidation was seen on May 1, 1950. The patient was discharged on May 3, 1950, as clinically well. Terramycin is apparently as effective as streptomycin and does not have the serious side effects.

New England Journal of Medicine, Boston

243:281-324 (Aug. 24) 1950

Adenoma of Islands of Langerhans: Its Differentiation from Functional Hypoglycemia. H. A. Perkins, J. F. Desforges and C. G. Guttas. —p. 281.
Management of Simple Fracture of Clavicle in Adults. T. B. Quigley. —p. 286.
Thromboangiitis Obliterans in Woman: Possible Relation to Rheumatic Disease. E. A. Edwards.—p. 290.
Hypertension. D. Loofbourow and R. S. Palmer.—p. 295.

243:325-356 (Aug. 31) 1950

*Renal Changes in Gout. J. Brown and G. K. Mallory.—p. 325.
Pleural-Fluid Eosinophilia. F. G. MacMurray, S. Katz and H. J. Zimmerman.—p. 330.
*Plasmacytoma of Lymph Node: Report of Case with Multiple Myeloma. M. A. Simon and S. Eidlow.—p. 335.
Cardiac Catheterization. L. B. Ellis and R. A. Bloomfield.—p. 339.

Renal Changes in Gout.—Brown and Mallory report pathological changes in the kidneys revealed by necropsy in five proved cases and one unproved case of gout. All kidneys showed significant or pronounced benign nephrosclerosis and deposits of urates in the medulla, probably originally in the collecting tubules. These observations conform to those of previous studies. Renal lesions presumably specific for gout were observed in one case, but no definite history of acute arthritis was obtained and no tophi or joint lesions were observed at necropsy. This case may have been one of "primary renal gout." Extensive chronic pyelonephritis was revealed by necropsy in two of the six cases; small focal areas of healed pyelonephritis were observed in one case, and observations in another case were suggestive of pyelonephritis. There was frequent association between tubules blocked by urates in the medulla and abscesses nearby or pyelonephritis in the cortex above. It is suggested that tubular blockage by urates predisposes to pyelonephritis, which may contribute to the renal damage commonly observed in gout.

Plasmacytoma of Lymph Node.—Simon and Eidlow report a man aged 52 with a painless swelling in the right inguinal region of four weeks' duration. A well demarcated lymph node was removed under local anesthesia. Biopsy revealed a plasmacytoma of the lymph node. Roentgenograms of the ribs, long bones and skull failed to reveal any pathological change. The urine showed no Bence-Jones protein, but bone marrow and blood protein studies were not done. The patient received irradiation to the right inguinal and iliac regions. One year later he was seen again because of slight recurrent swelling in the right inguinal region, but permission for another biopsy was refused and the patient was not seen for two years. When seen again he had signs of multiple myeloma. Bence-Jones bodies were demonstrated in the urine. Roentgenograms revealed pathological fractures of the ninth and tenth ribs, with many vacuolated and honeycombed areas of rarefaction in the left humerus and in the left scapula. The patient died 47 months after the lymph node biopsy. It is possible that the disease originated in the lymph node and later spread, but it is equally possible that the bone marrow was involved at the time of lymph node biopsy without roentgen evidence of bone destruction. Plasmacytoma in lymph nodes carries a grave prognostic significance and is usually followed, after varying periods, by clinically manifest multiple myeloma.

New York State Journal of Medicine, New York

50:1983-2094 (Sept. 1) 1950

Value of Proctoscopy as Routine Examination in Preventing Deaths from Cancer of Large Bowel. C. J. Miller, E. Day and E. S. L'Esperance. —p. 2023.
*Cholinergic and Anticholinergic Drugs and Their Trial in Treatment of Gastrointestinal Disorders: Trial of Urecholine and Banthine. K. S. Grimson.—p. 2028.
Incidence of Amebiasis in Albany (New York) Area. R. C. Towse, D. A. Berberian and E. W. Dennis.—p. 2035.
Diarrheal Diseases—New Specialty. W. Z. Fradkin.—p. 2040.
Acute Pancreatitis: Further Observations of Value in Its Recognition. W. F. Lipp and A. H. Aaron.—p. 2043.
Therapeutic Trends and Management in Advanced Carcinoma of Colon and Rectum. M. R. Deddish.—p. 2047.
Newer Concept in Management of Chronic Ulcerative Colitis. J. J. Stefano.—p. 2050.
*Chloromycetin Therapy in Chronic Ulcerative Colitis. Z. T. Bercovitz. —p. 2057.
Rehabilitation of Lower Extremity Amputee in Large General Hospital. W. M. Schultz.—p. 2061.
Experimental Study of Synthetic Breast Milk for Infant Feeding Formula. H. R. Litchfield, R. Norton and C. Hoffman.—p. 2067.

Cholinergic and Anticholinergic Drugs.—According to Grimson, drugs which stimulate the cholinergic pathways of the parasympathetic nerve supply to the gastrointestinal tract (cholinergic agents) and drugs which block these pathways (anticholinergic agents) are useful in treatment of functional disorders or diseases. The urethane derivative of beta-methylcholine chloride (urecholine®), given in doses of 2.5 mg. subcutaneously at four hour intervals, or 30 mg. by mouth taken on arising and 15 or 29 mg. midmorning and midafternoon, for prolonged periods up to two or more years proved most effective and aided treatment of megacolon, diabetic neuropathy with abnormal intestinal function, postvagotomy disturbances, abdominal distention or ileus and urinary retention following pelvic surgery or chordotomy. Beta-diethylaminoethyl xanthene-9-carboxylate methobromide (banthine®), given in doses of 100 mg. by mouth or 10 mg. subcutaneously or intramuscularly, proved most effective and aided treatment of peptic ulcer and to some extent several disorders or diseases of the small bowel and colon. Urecholine® is an effective agent for treatment of gastrointestinal disorders associated with diminished motor activity, and banthine® is an effective agent for treatment of disorders which, like peptic ulcer, are associated with excessive motor activity.

Chloramphenicol in Ulcerative Colitis.—Bercovitz treated 24 patients with chronic ulcerative colitis with chloramphenicol (chloromycetin®). Three grams daily were observed to be the most effective dosage. Thirteen patients showed pronounced improvement during the first month of observation. There was a prompt and often dramatic decline in the number of bowel movements, with normally formed stools, no blood or mucus, good sphincter control, no night movements and no abdominal discomfort. From a clinical standpoint these 13 patients became essentially normal. Sigmoidoscopy revealed that the mucosa was normal, and submucous petechiae were not observed. Three patients were moderately improved. Eight patients did not show essential change. Though initially they responded in mild degree to the drug, this response was usually only temporary, and in no instance was it comparable to that of the first group. Chloramphenicol therapy proved of definite value also in subsequent relapses. The prompt administration of the drug prevented the usual decline associated with a tendency to relapse and often resulted in rapid response. No patient relapsed to the level of the original severity of the disease. Chloramphenicol may be used repeatedly and for prolonged periods without toxic side-reactions. After the initial period of treatment for about one month, an interrupted schedule of treatment for relatively short periods proved superior to constant and prolonged administration. The patients continued to be improved, both symptomatically and sigmoidoscopically, for extended periods atfer administration of the drug was discontinued. Final clinical evaluation can be made only after a period of about five years, when sufficient time has elapsed to account for spontaneous remissions, seasonal variations, psychoemotional situations and other conditions which may influence ulcerative cholitis.

Ohio State Medical Journal, Columbus

46:845-940 (Sept.) 1950

Bronchoscopy in the Newborn. C. C. R. Jackson —p. 869.
Preliminary Report on "At Birth" Diphtheria, Pertussis and Tetanus *Immunization. H. D. Chamberlain and R. E. Bullock.—p 875.*
Recent Concepts in Study of Infertility. H. D. Clapp and D. R. Weir. —p. 877.
Case Report: Eclampsia in Fourteen-Year Old Negress with 252 Recorded Convulsions. E. Eichner and L. P. Mallin.—p. 882.
Unusual Ovarian Cyst Developing Post Partum: Case Report. M. E Black.—p 884.
Advantages of Ocular Implants in Enucleation Surgery. D. E. Rolf. —p 886
Case of Splenic Neutropenia Complicated by Infectious Mononucleosis *After Splenectomy. C. I. Wyler and E. H. Sterne Jr.—p. 888*

Philippine Medical Association Journal, Manila

26:243-270 (June) 1950. **Partial Index**

Total Pneumonectomy: Report of Successful Case A. I. Reyes —p 243
Paragonimiasis: Report of Three Cases with Pulmonary and Neurological Symptoms D. M. Garduño and D. Carpio —p 253
First Aid Management of Some Ocular Emergencies G de Ocampo and *V. Villadolid —p 261.*
Blood Banking R Y. Atienza —p 267.

Postgraduate Medicine, Minneapolis

8:155-250 (Sept.) 1950

Progress in Anesthesiology. E B Tuohy.—p 156
Hypersensitive Carotid Sinus J. R. Veal and R. Bauerfeld —p 160
Common Problems in Coronary Artery Disease. S N Jones and T. F. Kelliher —p. 172.
Carcinoma of Upper Rectum and Rectosigmoid. Clinical Report on High Inferior Mesenteric Ligation. G. W. Ault, A F Castro and R S Smith —p 176.
Practical Applications of Bacteriologic Studies in Diagnosis of Infectious Diseases S Saslaw.—p 184
Diagnosis and Treatment of Acute Pancreatic Disease R J Coffey, E B Barnes, P Reed and F. B Brandt —p 191
Some Problems Presented by Cranial Defects O H Fulcher and A A. Morris —p 198.
Splenectomy in Leukemia. O. B. Hunter and P C Kiernan —p 207.
Meckel's Diverticulum as Source of Massive Intestinal Hemorrhage F. R Sanderson and F. A Barrett Jr —p 214
Pulmonary Function Studies in Surgery J. J Curry and F S Ashburn —p 220.
Polyps of Large Bowel. C. E McNamara —p 225
Modern Treatment of Rheumatoid Arthritis D C Crain, I H Kyle and M. Rubin —p 228.
*Hemophilia Simulating Acute Surgical Abdomen M Shelton and H H Hussey —p 233

Hemophilia Simulating Acute Abdominal Conditions. —Shelton and Hussey point out that the bleeding of hemophilia is in the deep structures, muscles, bones and joints. This may help to distinguish hemophilia from other hemorrhagic diseases, such as thrombopenic purpura, in which blood often oozes from the mucous membranes Intra-abdominal hemorrhage is one of the most serious forms of bleeding in hemophilia. There may be hemorrhages into the wall of the colon or the mesocolon, where the signs are those of partial obstruction, and into the iliopsoas muscle, where the signs resemble those of acute appendicitis. The authors describe two cases which exemplify the difficulties that may be encountered when a hemophilic patient complains of pain in the lower part of the abdomen. At the time of their admission both patients were known to have hemophilia. It was not known if their symptoms were due to a bleeding episode or to acute appendicitis. In the first case, intestinal hemorrhage seemed most probable, because of the tarry stools and coffee ground vomitus and signs of generalized peritoneal irritation. The treatment was directed to correction of the coagulation defect, and the rapid regression of symptoms substantiated the impression that intra-abdominal hemorrhage was the sole cause. In the second case, the condition progressed so rapidly that surgical intervention appeared imperative. The patient was prepared with antihemophilia globulin, and the abdomen was explored as soon as the coagulation time approached normal. Intra-abdominal hemorrhage was found, although the clinical symptoms were those of acute appendicitis. Criteria for the diagnosis of hemophilia include a familial and personal history of bleeding, increase in clotting time of venous blood and return of the clotting time to normal after administration of antihemophilic globulin. During an acute episode of bleeding, local measures include application of cold to the area, pressure bandages, fibrin foam, thrombin, electrocautery, gelatin, epinephrine, muscle or placental extracts and application of globulin. If the hemorrhage is not controlled by local measures, or if there is internal bleeding, general therapy should be instituted. Transfusion of 500 cc. of whole blood usually corrects the coagulation defect. A transfusion of 200 mg. of antihemophilic globulin fraction I, dissolved in 5 to 10 cc. of isotonic sodium chloride solution is as effective as whole blood, if there is no anemia.

Proc. Staff. Meet. Mayo Clinic, Rochester, Minn.

25:473-504 (Aug. 16) 1950

SYMPOSIUM ON CORTISONE AND ACTH IN CLINICAL MEDICINE

Introduction. Cortisone and ACTH in Clinical Medicine P. S Hench —p. 474.
Effects of Cortisone and ACTH on Patients with Rheumatoid Arthritis C H. Slocumb, H F. Polley, P. S. Hench and E C. Kendall —p 476
Effects of Cortisone and ACTH in 14 Patients with Acute Rheumatic Fever A. R. Barnes.—p. 478
Effects of Cortisone on Acute Disseminated Lupus Erythematosus L A Brunsting, C H. Slocumb and J W. Didcoct —p 479
Effects of Cortisone on Bronchial Asthma and Hay Fever Occurring in *Subjects Sensitive to Ragweed Pollen H. M Carryer, G. A Koelsche,* L E Prickman and others —p. 482
Experience with Cortisone and ACTH in Chronic Ulcerative Colitis W. H. Dearing and P. W. Brown —p 486
Cortisone and ACTH in Management of Leukemia and Lymphoblastoma J M. Stickney F. J Heck and C. H Watkins —p. 488
Effects of Cortisone on Certain Ophthalmic Diseases J. W Henderson and R. W. Hollenhorst —p. 490
Action of Cortisone in Nephritis with Edema N M. Keith, M H Power and G W. Daugherty.—p 491
Effects of Cortisone and ACTH on Periarteritis Nodosa and Cranial Arteritis R M Sliick, A H Baggenstoss, B F Fuller and H F Polley —p 492.
Use of Cortisone and ACTH in Certain Diseases Psychiatric Aspects H P. Rome and F J. Braceland —p 495
Effects of Cortisone and ACTH in Certain Endocrine Conditions R M Salassa —p 497.
Cortisone in Neurologic Disease C H Millikan and L M Laton —p 499.
Summary Cortisone and ACTH in Clinical Medicine R G Sprague p *500*

Psychoanalytic Quarterly, Albany, N. Y.

19:295-454 (July) 1950. **Partial Index**

Prepuberty Trauma in Girls P. Greenacre —p 298
Mucous Colitis Associated with Phobias M Sperling —p 318
Obsessive Compulsive Symptoms in Incipient Schizophrenic W J Pious —p 327.
Application of Psychoanalytic Concepts to Social Science H Hartmann —p 385
*Unsatisfactory Results of Psychoanalytic Therapy C P Oberndorf —p 393.
Repression as Factor in Learning Theory H I Harris —p 410
Distinction Between Loving and Being Loved L J. Saul —p 412

Unsatisfactory Results of Psychoanalytic Therapy.—Oberndorf found that the two leading psychoanalytic journals contain, over the past 10 years, practically no articles reporting the results of psychoanalytic treatment. One of the most recent books on technic also fails to mention results In psychoanalytic treatment the aim is to relieve the patient of symptoms through a radical change in the structure of his personality Regression to very early periods of life may occur in the course of psychoanalysis, but the repeated reliving of these events does not necessarily produce an assuaging abreaction. The original neurosis may be replaced by a neurotic search for analytic interpretations. The author suggested in 1942 that a case be reviewed in consultation if the patient has been under classical psychoanalytic treatment four to five hours a week, for a total of more than 300 hours. Such a consultation might occur with a group of three experienced psychoanalysts. Such groups might decide if the patient should continue with the same analyst, be considered not well adapted to psychoanalysis or be referred to a second analyst because of transference difficulties leading to therapeutic stasis. It should be recognized that one analyst may fail to achieve satisfactory results with a patient where another may succeed. The author discusses measures that could be undertaken to improve the disappointing results of psychoanalysis. He feels that a questionnaire addressed to analysts as to their experience and opinion would be worth while. The value of the questionnaire will depend on the willingness of analysts to sacrifice some complacency and pride, to discard much of prevalent secrecy and to devote adequate time and thought to the replies The questionnaire method might eventually also be extended to patients who have completed their analyses and whose retrospective reactions might supply much valuable insight and data However, the fairest and probably the most productive approach is the study of each unsatisfactory psychoanalysis by the analyst in conference with his colleagues

Quarterly J. of Studies on Alcohol, New Haven, Conn.

11:373-526 (Sept) 1950

Effect of Alcohol on Liver *Lipids* and on Liver and Heart Glycogen J C Forbes and G M Duncan —p 373
Chloride Levels in Blood of Alcoholic Patients in Relation to Phenomenon of Craving W D Silkworth and M Texon —p 381
Acetaldehyde in Relation to Intoxication by Ethyl Alcohol L D MacLeod —p 385
Role of Acetaldehyde in Toxicity of Tetraethylthiuram Disulfide and Alcohol with Method for Determination of Acetaldehyde in 0 20 Ml of Blood D Lester and L A Greenberg —p 391
*Alcoholism and Acute Abdomen R Cohn and C Mathewson Jr —p 396
Transference Phenomenon in Alcoholics Its Therapeutic Implications C L Brown —p 403
The Washington Movement M A Maxwell —p 410
Drinking Patterns of Italians in New Haven Utilization of Personal Diary as Research Technique III Diaries 6 and 7 P H Williams and R Straus —p 452
Alcoholism in Ayurveda L A Ravi Varma —p 484

Alcoholism and Acute Abdominal Conditions —Cohn and Mathewson state that alcoholics may present a clinical picture resembling that of any of the other causes of acute abdominal conditions Since June 1942, 161 patients were observed at the San Francisco Hospital with a history of alcoholism or in an acute alcoholic state and with a primary complaint referable to the abdomen Observations convinced the authors that most alcoholics with abdominal symptoms respond quickly to a simple regimen of bed rest, intravenous fluids and gastric suction, with no oral intake The symptoms will usually disappear within 24 hours It has been the policy of the authors to observe the alcoholic patient hourly, and, if progressive improvement was not noted, another diagnosis was considered A useful laboratory aid is the flat abdominal roentgenogram taken with the patient in a position to demonstrate free air In the hospital with which the authors are connected free air was demonstrated in 87 per cent of the patients with perforated ulcer An elevated level of serum amylase is indicative of acute pancreatitis A moderately elevated level of serum amylase was found in only one of 18 instances in which the test was made The patient continued to experience pain at intervals and was believed to have recurrent pancreatitis The authors present four case histories illustrating the difficulties of differentiation of abdominal symptoms due to alcoholism and perforated ulcer or appendicitis Long-continued alcoholism may in some cases be followed by peptic ulcer All the 161 patients had abdominal pain Nausea and vomiting were common When the pain was severe it was usually mentioned as the primary complaint It was not possible to determine accurately whether the pain or the nausea and vomiting came first in the majority of cases Fourteen of the patients complained of diarrhea Sixty two patients had physical signs suggestive of peritoneal irritation The white blood cell count was elevated only in patients who subsequently were found to have some complication of alcoholism Gastrointestinal studies were done in only 26 of these patients at the time of admission Ulcers were not found in any

Rocky Mountain Medical Journal, Denver

47:649-728 (Sept) 1950

Intestinal Obstruction W H Cole —p 667
Alcoholism Problems of Treatment and Research A J Enelow —p 673
Relief of Intractable Pain by Roentgentherapy M H Levine —p 678
Prevention of Mumps in Adults Preliminary Report P R Farrington. —p 680
*The Thyroid and Menstrual Bleeding J B Deisher Jr —p 681

Thyroid and Menstrual Bleeding —Deisher emphasizes the frequent association of excessive uterine bleeding with hypothyroidism, citing a number of authors who have called attention to this fact In these patients excessive uterine bleeding is associated with headache and lassitude, often erroneously attributed to anemia The headache is severe, bursting in character, increasing to throbbing with exertion and unrelieved by the usual analgesics Diethylstilbestrol, in doses of 0 5 mg once or twice a day, *may give relief in an hour or two* The bleeding may be of a flooding nature Deisher believes that trial of thyroid therapy may, in many cases, obviate the necessity for curettage or hysterectomy Thyroid medication is much more acceptable to the patient, much less costly and, when indicated, much more effective than an extended and expensive series of injections of hormone preparations Physical examination reveals no sharply diagnostic features, but the combination of obesity or nervous slenderness with thickened dry skin, dry hair, cracked finger nails, low pulse pressure and, rarely thyroid enlargement substantiates the diagnosis of hypothyroidism Pelvic changes are minimal, consisting only of some tenderness of the adnexal tissues Pathological examination of the endometrium reveals normal or slightly hyperplastic architecture, with no obvious reason for the increase in bleeding The author cites five illustrative cases

Southwestern Medicine, El Paso, Texas

31:277-312 (Sept) 1950

Mr Ewing s Tribulations R B Homan Jr —p 289
Functional Uterine Bleeding R W Te Linde —p 290
*Use of Frozen Bone Bank Bone in Orthopaedic Surgery M H Leonard, L W Breck and W C Basom —p 292
Emergency Care, Handling and Transportation of the Injured and Its Importance in the Community C B Young Jr —p 296

Frozen Bone Bank Bone in Orthopedic Surgery.—Leonard and co workers established a bone bank in El Paso, Texas, in 1949, which has been successfully used by the authors for the past 18 months Excess bone removed during various orthopedic *procedures, resected ribs removed from clean cases and* bone from clean amputations which had been stored in a commercial deep freeze establishment at — 18 C were employed alone as well as to supplement autogenous bone The clinical response was *similar to that which would have occurred had* autogenous bone alone been used No postoperative infection or foreign body reaction were observed Two illustrative cases are reported One was that of a child on whom spinal fusion from *the third lumbar vertebra to the sacrum was performed with* strips of bank bone rib Roentgen examination made three months after the surgical intervention showed consolidation of the bone graft The other case was that of a man, aged 65, with *fracture of the radius, open reduction and bone graft with* the resected distal end of the ulna and bone bank bone were done Roentgenograms taken three months later showed solid union of the radius

Texas State Journal of Medicine, Fort Worth

46:669-730 (Sept) 1950

Obstruction of Gastrointestinal Tract in the Newborn Infant O Swenson —p 673
Treatment of Diarrhea with Carob Flour S K Kaliski and D D Mitchell —p 675
Diphtheria Prevention Cases and Carriers in a Local Community M L Fuller —p 679
Management of Convulsive Disorders in Chidren J L Otto —p 682
Practical Points in Preventing Maladjustments in Children J G Young —p 685
Surgical Treatment of Esophageal Lesions D L Paulson —p 687
Aureomycin Therapy in Bacterial Infections Resistant to Penicillin and Streptomycin E M Yow —p 694
Developmental Anomalies of Eye W O Murphy —p 698
Well Water Methemoglobinemia Report of Two Cases M C Carlisle —p 703
Use of Adrenal Cortical Hormone in Inflammatory Eye Diseases, Case Report O Lippmann —p 708
ACTH and Colchicine in Therapy of Gout Report of a Case of Acute Gouty Arthritis H N Leopold —p 710
Exfoliative Dermatitis from Dihydrostreptomycin Report of a Case B T Fein and L H Criep —p 712

West Virginia Medical Journal, Charleston

46:245-292 (Sept) 1950

Without Fear and Trembling C E Watkins —p 245
Highlights of Psychiatry Past, Present, and Outlook for Future G D Johnson —p 248
6 0 Chromatized Gut in Wound Closure After Cataract Extraction F B Fralick —p 251
Loeffler s Syndrome Transitory Pulmonary Infiltrations and Eosinophilia Case Report G E Irvin —p 256

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

23:513-578 (Sept.) 1950

SYMPOSIUM ON DIAGNOSTIC AND THERAPEUTIC USES OF RADIOACTIVE ISOTOPES

General Problems in Connection with Measurement of Radioactivity in Patients. N. Veall.—p. 527.
Applications of I^{131} and Na^{24} to Clinical Diagnoses. C. P. Haigh and M. Reiss.—p. 534.
Application of Radioactive Isotopes in Case of Multiple Melanomata. R. Marcus and J. Rotblat.—p. 541.
Radioactive Iodine in Diagnosis of Thyrotoxicosis. A. G. Macgregor.—p. 550.
Treatment of Thyroid Carcinoma by Radioiodine. R. Paterson.—p. 553.
Results of Treatment of Thyroid Cancer by Radioactive Iodine: Preliminary Report. H. C. Warrington.—p. 556.
Therapeutic Uses of Radioactive Isotopes in Royal Cancer Hospital. R. J. Walton.—p. 559.
Use of Radioisotopes in Therapy. G. W. Blomfield.—p. 566.

British Medical Journal, London

2:585-638 (Sept. 9) 1950

*Studies on Nature of Intrinsic Factor of Castle. B. E. Hall.—p. 585.
Cortisone (Compound E): Summary of Its Clinical Uses. J. M. Carlisle.—p. 590.
Streptomycin and Neomycin: Antibiotic Approach to Tuberculosis. S. A. Waksman.—p. 595.
Choice of Sulphonamides for Mixture Therapy. D. Lehr.—p. 601.
Medical Treatment of Hydatid Cysts of Lung. M. R. Castex and E. L. Capdehourat.—p. 604.
Recent Advances in Knowledge of Malaria Parasite. H E. Shortt.—p. 606.

Nature of Intrinsic Factor of Castle.—Hall says that vitamin B_{12} parenterally administered, is as effective in the treatment of pernicious anemia as extracts of liver. However, when administered by mouth, it requires, for its effective utilization the presence of a potentiating agent. In the absence of such an agent, the hematopoietic responses to the oral administration of vitamin B_{12}, in doses up to 100 times the minimal effective parenteral dose, are variable and unpredictable. Potentiation may be provided by known sources of intrinsic factor, such as gastric juice of normal or elevated acidity from human beings and extracts of the stomach and intestines of swine. Concentrated preparations that yield consistently effective and reliable therapeutic results have not yet been produced, owing to the ready destructibility of the intrinsic factor and the consequent loss of a portion or all of the intrinsic factor activity during the process of concentrating gastric or duodenal substances. Studies supporting the concept that the intrinsic factor is of the nature of an enzyme are described.

Indian Journal of Medical Research, Calcutta

38:131-202 (April) 1950. Partial Index

Microbiological Assay of Amino-Acids. S. B. Lal.—p. 131.
Studies on Biosynthesis of Nicotinic Acid. S. Banerjee and R. Banerjee.—p. 153.
Phrynoderma: Clinical and Biochemical Investigations. P. S. Menon, P. G. Tulpule and V. N. Patwardhan.—p. 173.
Hematologic and Other Findings in Normal Pregnant Females. B. V. Kothari and Y. M. Bhende.—p. 187.
*Aureomycin and Chloromycetin in Treatment of Experimental Plague. S. S. Sokhey and M. K. Habbu.—p. 197.

Aureomycin and Chloramphenicol in Plague.—Sokhey and Habbu believe that results obtained in their standardized experiments on mice should parallel those of clinical trials. To put a drug to the severest test, the authors started its administration after septicemia had developed, which was 72 hours after the induction of infection. Antiplague serum, a number of sulfonamides, penicillin and streptomycin had been tested previously for their efficacy in the therapy of plague. Aureomycin in a dose of 1 mg. every three hours for the first 12 hours and then every six hours for the rest of the 10 days, i. e., 42 mg. in all, was sufficient to save nine animals out of 10 infected with plague. When the dose of aureomycin was doubled, it still had to be administered for at least seven days for the same results to be obtained. Chloramphenicol, 8 mg. every three hours for the first 12 hours and then every six hours for the rest of the 10 days, i. e., a total of 336 mg., was necessary to obtain the same result. If these drugs were not given in sufficient quantity and for a sufficient number of days, infection recurred and killed some animals even as long as 15 days after the administration of the drug was stopped. These experiments show that both aureomycin and chloramphenicol given by mouth were effective in the treatment of plague.

Journal of Endocrinology, London

6:363-476 (July) 1950. Partial Index

Investigations into Phosphorus Metabolism of Adrenal Cortex. M. Reis and J. M. Halkerston.—p. 369.
*Effect of Hypothyroidism on Reproduction in Female Albino Rat. P. L Krohn and H. C. White.—p. 375.
Effect of Total Darkness on Growth of Newborn Albino Rat. J. T. Eayrs and K. F. Ireland.—p. 386.
Changes in Renal Function in Man Due to Disease of Anterior Lobe of Pituitary. M. Pickford and J. A. Watt.—p. 398.
Excretion of Urinary Neutral 17-Ketosteroids Following Bilateral Splanchnicectomy and Right Adrenalectomy. E. A. Michie and B. E. Clayton.—p. 423.
Citric Acid and Excretion of Oestrone and Oestradiol. M. S. Edwards, C. H. Gray and M. E. Wood.—p. 440.
Mechanism by Which Progesterone and Other Steroids Inhibit Vaginal Action of Oestradiol. J. M. Robson.—p. 449.
Alloxan Diabetes and Pregnancy: Long-Term Observation. O. Lindan and M. E. Morgans.—p. 463.

Hypothyroidism and Reproduction.—Krohn and White say that there are many indications that hypothyroidism is associated with inadequate reproductive function. Myxedematous women, for example, often suffer from menstrual disturbances and seldom conceive and bear children. Experimental analysis of the relation between the thyroid and ovary has not, however, led to clearcut conclusions. The effects of hypothyroid conditions on the reproductive processes of the female albino rat were therefore studied afresh, and the results of thyroidectomy and of chemical suppression of the thyroid compared. Some observations were made also on the rate of development of the litters from the treated rats. The authors found that pharmacologic suppression was more effective in causing a consistent depression of the metabolic rate than was surgical ablation of the thyroid. The estrous cycle tended to be longer, especially in thyroidectomized animals, and more variable in length. Hypothyroid animals ovulated and conceived, but fewer young were brought to term than in a previous normal pregnancy, due to resorption of fetuses at varying stages of gestation. The young of rats receiving thyroid-suppressing drugs all died by the end of the fourth week after birth, but the young from thyroidectomized mothers developed normally. It is suggested that the young of animals who had been injected died because suppression of the fetal thyroid by thyroid-depressing drugs which passed from the mother both before and after birth prevented normal development. It is not yet clear whether the interference with reproduction caused by hypothyroidism can be explained adequately by a general slowing down of cellular activity or whether any specific hormonal mechanism is primarily involved.

Proceedings of Royal Society of Medicine, London

43:579-688 (Aug.) 1950. Partial Index

Anoxia and Anaesthesia. B. G. B. Lucas.—p. 606.
Electrolytic Misadventures in Infancy. W. W. Payne.—p. 616.
Medical Applications of Microwave Diathermy: Laboratory and Clinical Studies. F. H. Krusen.—p. 641.
Transantral Neurotomy and Sealing of Foramen Rotundum for Neuralgia. W. O. Lodge.—p. 659.
Surgical Treatment of Laryngocele. H. P. Lawson.—p. 662.
Carcinoid Tumours of Rectum. R. W. Raven.—p. 675.

Acta Radiologica, Stockholm

33:389-490 (May) 1950. Partial Index

Percutaneous Angiography of Vertebral Artery. E. Lindgren.—p. 389.
*Patent Ductus Arteriosus: Diagnosis by Introduction of Catheter Through Ductus from Pulmonary Artery into Aorta. J. Karnell, G. Jönsson and B. Brodén.—p. 405.
Fever in Slow Radium Therapy in Otherwise Uncomplicated Cases of Cervical Carcinoma. V. Kahanpää.—p. 412.
*Hodgkin's Disease and Pregnancy. J. Bichel.—p. 427.
Physical Aspects of Roentgen Radiation from Beryllium Window Tube Operated over 2-50 Kilovolt Range for Clinical Purposes. W. A. Jennings.—p. 435.

Patent Ductus Arteriosus.—Karnell and his associates discuss the various roentgenologic methods for the diagnosis of patent ductus arteriosus. The angiocardiographic method had been in use for about 10 years, but no one had succeeded in visualizing the ductus directly, and the indirect signs proved to be more or less unreliable. Castellanos' method, using countercurrent injection of opaque substance into the brachial artery, was not suitable for routine purposes. The authors were able to make a diagnosis in some cases of patent ductus arteriosus by means of thoracic aortography. This method can be used in adults, is more difficult in children, and in infants almost impossible. If the ductus is wide, it is possible to maneuver a catheter inserted in the pulmonary artery through the ductus into the aorta. This is the most direct way of establishing the presence of a patent ductus. It does not involve any new and troublesome manipulation for the patient. The heart must be catheterized anyway, and when the catheter is in the pulmonary artery an attempt can be made to push it farther through a patent ductus. If there is no success after a few minutes, the attempt should be given up. Unless a ductus is found almost at once, the chances are that none is present or that it is not wide enough for catheterization. The authors used catheterization in 10 cases of patent ductus, and they were able to push the catheter through the ductus in four of these. Since patent ductus is not a rare defect and since catheterization must have been done in many such cases, the authors assume that they were probably not the first to insert the catheter through the ductus. They find it surprising that no one has called attention to the diagnostic value of this procedure.

Hodgkin's Disease and Pregnancy.—At the Radiological Clinic in Aarhus, Denmark, Bichel observed the course of Hodgkin's disease in 81 women, 11 of whom became pregnant. The literature contained rather detailed reports of 46 women in whom Hodgkin's disease was complicated by pregnancy. Thus it was possible to study 57 cases in which a total of 65 pregnancies occurred in the course of Hodgkin's disease. Of the 65 pregnancies, 42 were carried to term. A larger number of observations is necessary before the influence of pregnancy on Hodgkin's disease, and vice versa, will be clear but on the basis of the observations so far obtained, the author feels justified in concluding that conception frequently occurs in women with Hodgkin's disease, that from an obstetric point of view the pregnancy, parturition and puerperium run a normal course in the great majority, and that acute exacerbation of the disease is not more frequent during pregnancy than could be expected without it. Only one case is on record in which the mother died during pregnancy. Only one case has been reported in which it can be said with a reasonable degree of certainty that intrauterine transmission from mother to child took place. Generally, there will be no indication for interruption of pregnancy in patients with Hodgkin's.

Journal de Médecine de Lyon

31:627-678 (Aug. 5) 1950

*Chloramphenicol in Treatment of Typhoid Fever. S. Sédallian, R. Maral, C. Exbrayat, J. Traeger and L. Gaillard.—p. 627.
*Considerations on Modern Treatment of Tuberculous Meningitis of Adults. P. Sédallian, R. Maral and C. Exbrayat.—p. 643.
Permeability of Meninges in Course of Meningitis, Particularly in Tuberculous Meningitis. P. Sédallian, R. Maral, J. Traeger and G. Aventurier.—p. 673.

Chloramphenicol in Typhoid.—Sédallian treated 119 patients, 85 adults and 34 children, who had typhoid with chloramphenicol (chloromycetin®). The author regards an initial massive dose as useless and even dangerous. It could have been partly responsible for the fatal cardiovascular collapse which took place in six patients 18 hours to three days after the dose was given. A dose of 50 to 60 mg. per kilogram of body weight should be given by mouth every four hours for 15 days. Treatment should be continued with a dose of 25 to 30 mg. per kilogram of body weight for at least five additional days in cases in which cultures of feces remain positive. The patient is to remain in bed for one week after discontinuation of the drug. He may be discharged from the hospital one week later. Recovery resulted in 95 per cent of the patients. Temperature became normal gradually in 65 per cent of the patients and by a sudden drop within 24 hours in 30 per cent. Defervescence occurred in two stages with intervening fever in 5 per cent of the patients, most of them children. A mild rise in temperature recurred between the tenth and twentieth days in 20 per cent. Headache subsided rapidly, but insomnia disappeared only after the temperature became normal. Diarrhea continued occasionally for eight to 10 days after discontinuation of the drug. Diminution of the size of the spleen was observed usually at the time of or soon after the temperature became normal. Chloramphenicol probably prevents the ocurrence of new intestinal ulcers, but it does not hasten the healing of ulcers. Only two patients had intestinal hemorrhages. Intestinal perforation and phlebitis were not observed. The course of the disease was shortened and convalescence was hastened. Twenty patients had recurrences but responded well when treatment was resumed. Only early and prolonged treatment will reduce the high incidence of relapses. Chloramphenicol seemed to be ineffective in bacilli carriers. Although chloramphenicol is a highly valuable drug, prophylactic treatment with typhoid vaccine should not be neglected.

Modern Treatment of Tuberculous Meningitis.—Sédallian and co-workers report on 173 patients over 14 years of age with tuberculous meningitis who were admitted to the hospital during the period of May 1947 to October 1949. Of the 173 patients, 132 were admitted before Aug. 1, 1948, and 17 of them are living. Forty-one were admitted after Aug. 1, 1948, and 17 of them survived and are in a state of clinical recovery. Comparison of these two groups shows in a general way the progress made. The patients admitted after Aug. 1, 1948, were in a less serious condition because diagnosis had been made earlier. Methods of treatment had been improved. Mildly abnormal cerebrospinal fluid during or after treatment for miliary tuberculosis suggests a caseating meningitis in an early stage and requires treatment. Transitory meningitic episodes associated with tuberculous nonmiliary primary infection may regress spontaneously within a few days. Except for rare cases, combined treatment by intramuscular and intraspinal route should be instituted in all cases in which the diagnosis of tuberculous meningitis has been established. Streptomycin, para-aminosalicylic acid and glucosulfone sodium (promin®) and its derivatives were the drugs employed. A few patients made a rapid recovery, with cerebrospinal fluid restored to nearly normal after 25 days of treatment. Treatment by intramuscular route was discontinued on the hundred and fifty-fifth day, and recovery was maintained for 21 months after discontinuation of the drug. The majority of the patients showed definite improvement in the cerebrospinal fluid in the course of the fourth or fifth month of treatment, which in general was discontinued after the fifth or sixth month, when the cerebrospinal fluid was restored to nearly normal. Two patients showed late improvement and were in a confusional state for four months. They made a satisfactory clinical recovery after eight months of treatment, and the recovery was maintained for 23 and 16 months, respectively, after treatment was discontinued. Two patients had a recurrence but recovered when treatment was resumed. One late fatal recurrence was observed one year after the first course of treatment was terminated. Clinical recovery usually occurred much earlier than the restoration of the cerebrospinal fluid to normal, the latter requiring seven to 10 months. Follow-up examinations should be made every two weeks for two months following discharge from the hospital. One monthly examination is advisable for the next six months and several additional examinations every second or third month, making a total follow-up period of 18 months.

Medisch Maandblad, Djakarta

3:233-264 (July 1) 1950. Partial Index

*Abscess Tonsillectomy. R. A. J. Niels.—p. 233.
Clinical Experiences in Treating Epidermophytosis with Fatty Acids. Tio Biauw Sing.—p. 237.

Abscess Tonsillectomy.—Niels reviews observations on 22 cases of peritonsillitis treated at his hospital. The process was bilateral in two of these cases. Incision, done in four of the 22 patients, proved effective in three. The patient in whom incision was not effective and the 18 other patients were treated by bilateral tonsillectomy *à chaud*. The operation was done under local anesthesia. Tonsillectomy for peritonsillar abscess produces a complete cure. The tonsil not complicated by an abscess should be removed at the same time the abscessed tonsil is being removed.

Revista Chilena de Pediatria, Santiago

21:289-328 (July) 1950. Partial Index

*Bone Changes in Leukemia in Children. J. Hasbun and R. Eberhard.—p. 289.
Tuberculoma of Brain in Infants. Z. Fuentes A.—p. 298.

Bone Changes in Leukemia.—Hasbun and Eberhard report nine cases of acute lymphatic leukemia in children in whom the diagnosis was facilitated by periodic roentgen examination of the bones. Bone lesions visible in the roentgenograms are frequent in acute lymphatic leukemia of children. Lesions in eight cases were located in the distal metaphysis of the femur and in the distal ends of the radius and the ulna in one case. The roentgen picture was of the osteolytic type in five cases and of the osteochondrotrous subperiosteal and osteosclerotic types in the other four cases. Osteomyelitis is differentiated from acute lymphatic leukemia, in patients who present bone lesions and local pain, by examination of the blood and the bone marrow obtained by sternal puncture.

Tuberkulosearzt, Stuttgart

4:309-370 (June) 1950. Partial Index

Investigations on Mode of Action of Pneumoperitoneum with Special Consideration of Roentgen Kymography. H. Böhme.—p. 310.
Etiology and Therapy of Spontaneous Pneumothorax U. Bormann.—p. 316.
*Intracavitary Injection of Chemotherapeutics in Children and Adolescents. N. Ebers.—p. 319.
Interruption of Phrenic Nerve and Pneumoperitoneum in Treatment of Upper Lobe Cavity. A. Emmler.—p. 324.
Symptomatology and Therapy of Pleuritis Sicca. A. Grimminger.—p. 331.
Use of Laevoral, a Substance to Protect the Liver to Increase Tolerance for Thiosemicarbazone. E. Köhler.—p. 335.
Contralateral Pneumothorax and Thoracoplasty. D. Schwenkenbecher.—p. 337.
Chemotherapy in Laryngeal Tuberculosis. R. Gmader and L. Rickmann.—p. 340.

Injection of Chemotherapeutics into Pulmonary Cavities.—Ebers employed intracavitary injections in six children and adolescents. He believes that intravenous injection of chemotherapeutics can be tried in cases of cavitary tuberculosis in which the pleural cavity is obliterated and in which extent and toxicity of the tuberculous process make other therapeutic measures inadvisable. The intracavitary injection can be given either in preparation for a surgical intervention or as a last resort. There are cavities which, because of their proximity to large pulmonary vessels, do not permit intracavernous injection. The choice of the site of injection, whether at the front or back of the thorax, is determined by tomographic examination; that is, the shortest distance is taken. The injection is made with the patient on the tilted x-ray table. The patient is placed so that the cavity is struck by the central beam. The injection is made with a syringe which has a cannula 8 to 10 cm. in length. When the intercostal space has been entered, a roentgenologic control is made to check the direction of the cannula, which is then pushed forward while air bubbles or secretion are aspirated. Penetration of the wall of the cavity can sometimes be felt. The patient should rest in bed for a day after the injection. At first, injections are made two or three times and later once weekly. The authors used a 2 per cent suspension of 4-acetylaminobenzaldehyde thiosemicarbazone (conteben® or Tb 1-698) in distilled water, a 2 per cent suspension of the same substance in a 4 per cent solution of paraaminosalicylic acid, a 4 per cent solution of paraaminosalicylic acid without the addition of the thiosemicarbazone preparation, a 10 per cent solution of streptomycin or a soluble derivative of the aforementioned thiosemicarbazone. The quantity injected was 2 to 4 cc. The early results were better than any with any other method. Continuation of these therapeutic experiments is therefore advisable, although the method is not without danger.

Wiener medizinische Wochenschrift, Vienna

100:441-468 (July 1) 1950. Partial Index

Psychogenic Disorders of Menstruation. A. Mayer.—p. 443.
Serum Hepatitis in Pernicious Anemia. J. Beyreder.—p. 447.
*New Possibilities of Salicylic Acid Therapy: Intravenous Therapy with Solusal® (Ethanolamine Salt of Salicylic Acid). W. Blumencron and E. Borkenstein.—p. 449.

New Possibilities of Salicylic Acid Therapy.—According to Blumencron and Borkenstein, the intravenous route for administration of salicylic acid is superior to any other with respect to rapidity and duration of effect on true rheumatism. It is the method of choice in recurrences, in which oral administration has lost its efficacy because of habituation to the drug. The prompt effect of intravenous administration is the result of the thrustlike production of a high salicylic acid concentration in the blood. A higher salicylic acid concentration in the blood may be obtained with ethanolamine salt of salicylic acid (solusal®) administered intravenously than with sodium salicylate. This higher concentration of the drug may be maintained for at least 10 hours by a repeated injection of solusal.® The average blood serum value was 26 mg. per 100 cc. five hours after the injection of 10 cc. of 20 per cent solusal,® while it was 10.5 mg. per 100 cc. after the injection of 20 cc. of 10 per cent sodium salicylate. The maximum salicylic acid effect may thus be obtained by this route with much smaller doses than by any other route. Untoward reactions to salicylic acid are avoided. There was not a single instance of albuminuria, so that intravenous salicylic acid therapy may be practiced even in the presence of renal lesions. Intravenous administration was well tolerated by patients in whom administration of small doses by mouth was not feasible because of intolerance. Intravenous injections of solusal® were well tolerated by highly sensitive patients, provided they were made slowly and provided the contents of the syringe were mixed with the patient's blood. The rapid effect of the intravenous salicylic acid injection on the symptoms of true rheumatism makes it possible to use it as an aid in differential diagnosis of true rheumatism from other types of rheumatism. Only an analgesic effect may be expected from salicylic acid preparations in focal forms of rheumatism and in rheumatoid forms, but it may be more pronounced in intravenous than in oral administration of the drug.

100:469-492 (July 22) 1950. Partial Index

Causes of Immediate and Late Failure of Surgical Intervention on Stomach for Ulcer and Its Complications. H. Finsterer.—p. 472.
*Preliminary Results of Vagotomy for Peptic Jejunal Ulcer (Recurrent Ulcer). F. Mandl.—p. 476.
Rheosphygmography, New Method for Diagnosis of Peripheral Vascular Diseases. H. Jantsch.—p. 478.

Vagotomy for Peptic Jejunal Ulcer.—Mandl performed vagotomy on 15 patients with an ulcer recurring after gastrectomy. In three of these patients, 19 to 28 years had elapsed since the gastrectomy. One of the 15 patients died from a suppurative meningitis on the tenth day after the vagotomy. Only one month had elapsed since the vagotomy was performed in another patient, and the follow-up period was, therefore, too short to permit definite conclusions. Complete recovery resulted from vagotomy in six patients. Two patients were therapeutic failures. One patient made an uneventful recovery but died from uremia three months after the vagotomy; his case is considered as doubtful. Evaluation of results is not easy in the four remaining cases. One patient had been operated on four times for peptic jejunal ulcer which was considered as surgically incurable; vagotomy was performed, but only temporary improvement resulted. Carcinoma simulating a recurrent jejunal ulcer 19 years after gastrectomy was revealed by necropsy nine months after the vagotomy in one case. Vagotomy was incomplete because detection of the posterior branch of the vagus was impossible in one case with gastrocolic fistula. Death resulted from severe hypoproteinemia in spite of vagotomy in one patient. Vagotomy offers many advantages as compared to radical methods in clear cases of peptic jejunal ulcer.

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association with the Comments That Have Appeared in The Journal of the American Medical Association, 1949. Cloth. $2. Pp. 231. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal [n.d.].

Of the six excellent reports on the status of various therapeutic preparations and procedures contained in this volume, perhaps the most noteworthy is the progress report "Estrogens and Androgens in Mammary Cancer," which presents an admirably organized study of the problem, and which is to be continued with procedures revised in the light of experience. The present conclusion is that steroid hormones represent a new weapon for the palliative treatment of breast cancer, to be used in those cases in which surgical or irradiation treatment, or both, cannot be applied or have proved unsuccessful. The other reports in this category are equally well planned and informative. That on organomercurial compounds represents a continuation of the Council's effort to encourage the development of more objective evidence concerning the true value of this class of compounds. The report of Grimson and co-workers, "Newer Adrenolytic, Sympatholytic and Ganglionic Blocking Drugs," is a brief but careful evaluation of several agents for use as substitutes for regional sympathetic block or actual sympathectomy in peripheral vascular disease problems.

The three papers "Aluminum in the Therapy and Prophylaxis of Silicosis," "Status Report on Analeptics" and "New Analgesics" emphasize methods and procedures for investigation and evaluation and are thus related to the Luykx paper, "Progress Without Statistics," and the two sponsored by the Council's Committee on Research, "Methods of Clinical Study and Evaluation of Therapeutic Agents in Poliomyelitis," and "Fundamental Scientific Research Essential to Progress in Applied Therapeutics." Together, these form an illuminating and instructive commentary on the methods and procedures of modern therapeutic research. Certainly they evidence the Council's increasing preoccupation with this field.

The report consigning sulfathiazole and sulfathiazole sodium to the therapeutic discard, one rejecting a pseudoscientific anti-obesity preparation, Pit-thyrocas, and the mention of a long list of cancer "cures" in the report "Cancer and the Need for Facts," alone represent the type of condemnatory report that in other years formed so large a part of the collected reports. Eight reports on adoption of protected and generic names for drugs, the report of the Council's annual meeting, some instructive comments on the Council's rules and a statement on the legal requirements for prescription writing round out the contents of this small but extremely valuable book.

New and Nonofficial Remedies, Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1950. Issued under the Direction and Supervision of The Council of Pharmacy and Chemistry, American Medical Association. Cloth. $3. Pp. 800. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1950.

Though it seems somewhat irreverent to apply the overworked term streamlined to such an authoritative and dignified volume, the dark blue cover with gold lettering and the lines of the 1950 edition, together with the new typeface employed, immediately suggest the word. This characteristic of the cover is carried out in the editorial attention that has obviously been given to the text. Comparison with the 1949 volume will show that an attempt has been made to eliminate repetitious and unnecessary phraseology and to achieve more logical arrangement of material (for example, that in the vitamin chapter), in effect, to give the book a more homogeneous character. Still further effort in this direction might be desirable. A new and significant section has been added: a list of trade names recognized by the Council for pharmacopeial preparations which are now excluded from the book by the rule that products of 20 years' official standing are not accepted for consideration. The continued operation of this rule gives additional verisimilitude to the words "new" and "nonofficial" in the title. The relegation of tests and standards for accepted nonofficial preparations to a separate section is continued. This section has been made more readable by the change to a clearer type.

About 58 new preparations have been added, including antihistaminics, sulfonamide mixtures, antibiotics, a water-soluble vitamin A, and vitamin B_{12}. Many of these stand accepted under protected names and appear under the recognized generic designations. There has been no radical revision of the text, but several chapters, including that on the vitamins already referred to, have been judiciously rearranged in the interest of clarity and accessibility of the material. Notable among these are the chapter on hormones and synthetic substitutes and the two chapters on anti-infectives.

Communicable Diseases. Edited by Roscoe L. Pullen, A.B., M.D., F.A.C.P., *Professor of Graduate Medicine, School of Medicine, Tulane University of Louisiana, New Orleans.* Cloth. $20. Pp. 1035, with 273 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1950.

It is an interesting commentary on medical writing that for many years there has been a crying need for a comprehensive monograph on infectious disease in spite of the fact that during the past two decades the practical advances in this field have probably been greater than in any other branch of clinical medicine. Medical students and physicians have had to rely on textbooks of general medicine and of bacteriology and immunology, current medical periodicals, and specialized monographs dealing with chemotherapy and with single infections, in order to keep abreast of advances which have literally revolutionized the management of many communicable diseases. The volume is designed to cover the entire field of contagious illness. Its 60 chapters were written by 53 authors, 39 of whom are either active or former faculty members of the Tulane and Louisiana State Medical Schools in New Orleans. Discussion of the individual diseases is presented in an orderly manner, the classification used being based on the predominant clinical manifestation caused by the infection, i. e., involvement of skin, respiratory tract and nervous system. There are numerous instructive illustrations, tables and charts, and most of the chapters include rather comprehensive bibliographies.

The subject matter covered is almost entirely clinical, and the text is for the most part descriptive. Herein lies the most serious defect in the monograph. No branch of clinical medicine can today be adequately taught to undergraduate or postgraduate students without a strong emphasis on pathological physiology. Many of the chapters fail to touch on mechanisms of pathogenesis, recovery and prophylaxis, discussions of which would greatly increase the reader's understanding of each of the diseases described. To be sure, the recently published companion volumes of Dubos and Rivers dealing with bacterial and viral infections present the mechanistic approach to microbial disease, but these are essentially textbooks of microbiology rather than of clinical medicine. For the clinician to appreciate the true nature of any infection and the rationale of its management, he must have a clear understanding of both the behavior of the invading parasite and the defense mechanisms of the host. If in future editions discussions of these important matters, which by too many clinicians are considered of only theoretical interest, can be added to the otherwise excellent text, the over-all value of the monograph will be greatly increased. In its present form this comprehensive volume is certain to serve a most useful purpose and will undoubtedly be widely read not only by medical students but also by practicing physicians.

A Textbook of Histology: Functional Significance of Cells and Intercellular Substances. By E. V. Cowdry, Professor of Anatomy, The School of Medicine, Washington University, St. Louis, Mo. Fourth edition. Cloth. $8.50. Pp. 640, with 337 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1950.

Again thoroughly revised, the present edition of this work is considerably expanded beyond the third edition (1944). The first two editions were written for keener, more mature students and studiously avoided illustration or discussion of what becomes evident in the laboratory. The streamlining of factual content that took place in the third edition has been maintained, but the text has been expanded by additional use of comparative tables and elementary introductory remarks. There are many new references and some new figures. The thoroughness of each of the three revisions, with attendant fluctuations in volume, has not diminished the distinctive character of Cowdry's text. The treatment remains a personalized, highly selective account of the major aspects of histology, with some topics, notably skin and blood, selected for emphasis. The vitality of presentation is matched only in earlier editions. Current research activity is pointed up by references to illustrations in "Life" magazine and admonitions to watch for the publications of particular authors. The frankly partisan presentation of existing controversies is possibly a desirable stimulant to the critical student.

It is clear what Cowdry thinks a course in histology should be and also what attitude should, according to him, be cultivated in the student. These opinions require thoughtful consideration by both instructor and student. For the instructor who agrees with this emphasis and approach, this edition is a distinct advance. Where lectures are designed to deal amply with other aspects of histology, the book provides interesting auxiliary material. The text assumes laboratory familiarity with human material and with some fresh preparations. A set of questions on each chapter is included. The book is thus geared to integration in the medical curriculum as a prime objective rather than to function as an authoritative reference on minutiae.

Pye's Surgical Handicraft: A Manual of Surgical Manipulations, Minor Surgery, and Other Matters Connected with the Work of Surgical Dressers, House Surgeons and Practitioners. Edited by Hamilton Bailey, F.R.C.S., Surgeon, and Surgeon-in-Charge of the Genito-Urinary Department, Royal Northern Hospital, London. Sixteenth edition. Cloth. $6. Pp. 724, with 830 illustrations. The Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1950.

This edition of this popular surgical handbook has been rewritten with emphasis on standard surgical principles and technics. The concise paragraphs and numerous illustrations explain fundamental principles of handling of common surgical problems. First aid is emphasized, technics for emergency and minor surgery are outlined, and there is a description of available instruments and the standard use of bandages and casts. Though not a reference textbook on surgery, this handbook is a practical and detailed outline which should aid medical students and general practitioners. It should also afford interesting reading for those with more detailed surgical experience. The content of the book is appropriately described by its title, "Surgical handicraft," and the book is recommended to those desiring information on simple and standard general surgical technics.

Techniques in British Surgery. Edited by Rodney Maingot, F.R.C.S. Cloth. $15. Pp. 733, with 473 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1950.

This work represents a compilation of articles by 29 British surgeons, each of whom is an authority in his field. While the title may suggest that surgical technics are different in Britain, this is not the case. Surgical procedure today in Britain is not different from that practised in the United States, or, for that matter, anywhere else.

The arrangement of the material is not well balanced. The space devoted to orthopedic procedures greatly overbalances such timely subjects as surgery of the gastrointestinal tract. It seems that in a one volume work, a chapter on so highly specialized a subject as mammaplasty, to which 15 pages are devoted, is obviously a superfluity. The section on the surgical treatment of pulmonary tuberculosis is timely and well written. It is felt that the term "incautious" should be discarded from a surgical textbook, for caution is the keynote of all surgery (page 291, figure 179). The section on acute infections of the hand is well written but, here again, too abbreviated. A better correlation of subject matter would be desirable. For example, article 13 deals with benign strictures of the rectum and is followed by cysts of the epididymis, which precedes a chapter on carcinoma of the head of the pancreas only to be followed by an article on some surgical aspects of gastric surgery, which is succeeded by an article on hypospadias, and, immediately after this, an article on aseptic intestinal anastomosis. Among others, some of the outstanding articles in this compilation are on the surgery of the thyroid gland and the procedures relating to thoracic surgery. Some of the illustrations are excellent; others are too diagrammatic.

Types of Diabetes Mellitus and Their Treatment. By Arthur R. Colwell, M.D., Associate Professor of Medicine and Director of Medical Specialty Training, Northwestern University Medical School, Chicago. Publication Number 67, American Lecture Series, A Monograph in American Lectures in Endocrinology. Edited by Willard O. Thompson, M.D., Clinical Professor of Medicine, University of Illinois College of Medicine, Chicago. Cloth. $2.25. Pp. 97, with 6 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W. Toronto 2B, 1950.

The author is one of the best qualified students of clinical diabetes in the United States and presents material for the general clinical reader in well chosen language, appropriately condensed for quick perusal and based at all times on clinical rather than theoretical considerations. This volume is a handbook for quick reference for the physician who does not see many patients with diabetes but who wants to know how to take care of his diabetics in the most thoroughgoing and safe way. The point of view is not limited to any one of the several types of dietary treatment of diabetes nor does the author show any favoritism for a particular type of insulin. Although this is in no sense a manual for the mutual use of physician and patient, sufficient information is included herein so that a physician can provide for a patient, in typed or mimeographed form, essential information about foods and other problems of the diabetic, for the management of any of the ordinary cases of diabetes encountered in clinical practice. It is important to note that the directions for the safe and thoroughgoing management of emergencies, including coma, infections and surgical operations are based on the time-tested practical scheme devised by Dr. R. T. Woodyatt. In a field where the clinical and experimental literature is so voluminous, the author has made a selection of 50 bibliographic references, which will be of real value to the clinical reader who wants to be abreast of the important recent publications. This book can be recommended confidently to any physician who wants a condensed and simple manual for the treatment of diabetes.

Plastic and Reconstructive Surgery: A Manual of Management. By Ferris Smith, M.D., F.A.C.S., Consultant in Plastic Surgery, Blodgett Memorial Hospital, Grand Rapids, Michigan. Cloth. $15. Pp. 895, with 592 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1950.

The purpose of this book is to present and emphasize the trend of plastic surgery since World War I. The basic principles of plastic surgery are discussed, and methods of application are evaluated. The author states in his preface that such conditions as hypospadias and epispadias should be corrected by the urologic surgeon, absence of the vaginal tract by the gynecologist and lesions of the tendons, nerves and bones by the orthopedist.

The first chapter, which contains general considerations, is particularly well presented. More space could have been devoted to the section pertaining to plastic and reconstructive surgery of the breast. Although this subject was well presented in the eight pages devoted to it, the operative procedures should have been presented in the form of illustrations along with the preoperative and postoperative photographs shown. The book is well written and well printed. Numerous preoperative and postoperative photographs are shown, and these are always convincing. This will make an excellent reference book for those interested in plastic and reconstructive surgery.

Surgery of Cataract. By Daniel B. Kirby, A.M., M.D., LL.D., Professor of Ophthalmology, College of Medicine, New York University, New York. *Cloth. $30. Pp. 695, with 339 illustrations. J. B. Lippincott Company,* 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1950.

This masterful treatise is the most comprehensive work of this kind ever to appear. It is so ample that at times it is almost repetitious. In a wide exploration of the literature of cataract surgery, there are numerous extensive direct quotations, not always readily distinguishable from the author's original material. One wonders whether a greater purpose would not have been served by less verbiage so that the book might be sold in a price range with a wider appeal, especially to the beginning ophthalmic surgeon for whom a study of this work would be most beneficial. Binding, printing and the numerous illustrations, many of them in color, are of the highest caliber.

There is assembled a complete account of the history of the cataract operation as far as it is known for the past 3,000 years, with a detailed description of the early couching operation and the evolutional process involved in the development of the modern methods employed. Further chapters deal with the basic subjects of embryology, anatomy, physiology and pathology of the lens and asepsis and antisepsis. Instruments are described in detail, especially those favored by the author. In the drama of cataract surgery, the author brings a touch of philosophy and theology into the discussion of the training and preparation of the eye surgeon. Consideration is given to the importance of the preoperative examination of the patient and to the standards for judging progress or arrest of lens opacities. In a review *of the nonsurgical treatment of cataract, there is emphasized* the lack of results from all known methods of this type of treatment.

The etiology and classification of cataracts are considered at length and indications given for extracapsular and intracapsular extractions, with the latter favored in most instances. This is quite in keeping with present trends, and, while all accepted technics are described, the detailed steps and procedures developed by the author and published in numerous previous articles are systematically emphasized. Most eye surgeons develop the practices learned from a variety of sources which best fit their particular capability and temperament. There can be no doubt that Dr. Kirby's technic is highly satisfactory, and whether or not the reader decides to adopt the method in toto he will find concretely expressed many ideas which may be applied and adapted to personal needs. The chapter on the prevention and handling of complications is particularly practical. The chapter on the correction of aphakia is particularly valuable, since this phase has received a minimum of attention in the past, with the drama of the surgical procedure completely overshadowing the necessity of proper optical correction of the defect resulting from loss of the lens.

It is likely to be a long time before any book on the surgical aspects of the cataract operation approaches the volume of material in this monumental compilation, and while the cost will deter many from owning the volume those with extensive interest in the subject will give it an important place in their libraries.

Personality in Peptic Ulcer. By Albert J. Sullivan, M.D., Head of Section on Gastroenterology, Ochsner Clinic, Tulane University of Louisiana School of Medicine, New Orleans, and Thomas E. McKell, M.D., Instructor in Medicine, Tulane University of Louisiana School of Medicine, New Orleans. Cloth. $3. Pp. 100, with 13 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This is an interestingly and convincingly written little book indicating that intrinsic (personality) psychic factors and extrinsic psychological factors (emotional situations) serve as predisposing and excitatory causes of peptic ulcer. Data and cases are presented, and the role of psychotherapy is pointed out. The authors properly emphasize "that adequate treatment depends upon proper evaluation of the numerous etiologic factors involved in the production of each individual case of peptic ulcer." In view of the title, the saneness of the book is refreshing. The book will be helpful to those who desire a good orientation toward the role that personality and emotional factors play in so-called psychosomatic disorders.

Physician's Handbook. By Marcus A. Krupp, M.D., Assistant Clinical Professor of Medicine, Stanford University School of Medicine, San Francisco, *Norman J. Sweet, M.D., Assistant Professor of Medicine,* University of California School of Medicine, San Francisco, Ernest Jawetz, Ph.D., M.D., Associate Professor of Bacteriology, University of California School of Medicine, San Francisco, and Charles D. Armstrong, M.D., Clinical Instructor in Medicine, Stanford University School of Medicine, San Francisco. Sixth edition. Boards. $2.50. Pp. 380, with illustrations. University Medical Publishers, Post Office Box 761, Palo Alto, California, 1950.

It is amazing how many facts the authors have been able to compress into this small book. It is in a sense a counterpart for medicine to the well known "Handbook of Chemistry and Physics," and is similarly encyclopedic in its coverage. The first chapters are on general and specialized types of physical examinations. One is reminded, for example, how to test the fifth cranial nerve, or one may find a table showing the *normal range of motion in ulnar deviation of the wrist. Then* follow chapters on roentgen examinations, electrocardiography and special procedures in various specialties. The next sections are largely concerned with therapy; here, technics of treatment are described and a list of drugs and dosages given. Finally, most of the remainder of the book is concerned with laboratory technics, which are most simply and usefully stated.

No student or physician can ever remember all the facts he needs nor even their interpretations. This handbook will almost surely give him details of any procedure he is looking for or may even suggest a procedure to him, with a two-line explanation of what it means. Although there is now no dearth of pocket handbooks of medicine, this is certainly one of the best and will please any user. Criticisms are hard to make, for the content and format are both excellent. One might wish for an occasional credit line, but it is characteristic of most handbook material that the popularity of the context soon hides its origin.

Soviet Psychiatry. By Joseph Wortis, M.D., Assistant Clinical Professor of Psychiatry, New York University College of Medicine, Brooklyn. Cloth. $5. Pp. 314. The Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, 1950.

This monumental work of Dr. Wortis is based on about 7,000 items from the Russian neuropsychiatric and political literature covering a period of over three decades. The author wisely devotes the first chapter of his book to a careful discussion of the ideology of Soviet Russia. Against this background, he focuses the materialistic and practical bent of Russian scientific thinking as contrasted with the philosophical idealism of the West.

The cornerstone of the materialistic orientation is that "mind is a function of matter and derivative from and secondary to it." Soviet psychiatry is, therefore, organically oriented with pavlovian physiology as the nucleus and cannot accept the concept of the unconscious, which is the foundation of freudian psychology. Wortis devotes an entire chapter to a discussion of Pavlov's ideas of excitation and inhibition and the physiological explanation of mental disease.

The chapter on the organization of psychiatric care is extremely interesting. Russia, with a population of 200,000,000, has only one-half the number of psychiatrists and only one-tenth the number of psychiatric beds as compared with the United States. The Russian setup is so different from that of the United States that it warrants further study.

From the chapter dealing with psychoanalysis and psychotherapy, it appears that psychoanalysis has no place in the Soviet scheme of things. Psychotherapy rests primarily on "common sense" treatment combined with a strong emphasis on work and social activities. The Russians have made a religion out of work, and the psychiatrists use it extensively as a therapeutic agent. The child in the Soviet Union is considered the "flower of the nation," and the care and attention it receives from infancy through school may, in a sense, be regarded by some as prophylactic psychiatry. A chapter is devoted to this subject in which the author points out the close integration of Soviet psychology with pedagogy, based on the thesis that it is possible "to alter character and personality development by training, pedagogy and social influence."

The chapter on treatment refers to the use of such standard methods as sleep treatment with amobarbital sodium, insulin therapy (the Russians reported on a study of over 100 cases as long ago as 1936), pentylenetetrazole (metrazol®), electroshock, as well as some novel procedures which include the Bogomolets antireticular cytotoxic serum, colloidoclastic shock, autogenous serum and roentgen irradiation treatment.

The reader is urged not to skip the appendix, wherein there is reference to devastating criticism levelled against one of the preeminent Russian psychologists, Rubinstein (the author of "Foundations of General Psychology"), by one of his countrymen for his attempt to effect a synthesis between the conscious and the "freudian unconscious." In the specter of classless existence where the person does not count as a unit but as a part of the whole, the work and the accomplishments of the whole are predominantly important and color the person only in passing. It is not at all unlikely that the psychologist Rubinstein may, in a subsequent edition, alter his views to conform more strongly to marxism and still remain scientifically honest.

The over-all feeling one has, after putting the book aside, is that Soviet psychiatry is a healthy, progressive discipline and that the author has clearly defined the forces responsible for the organic orientation as well as for the total eclipse of psychoanalysis there. It is commendable that Wortis, to provide a real and comprehensive survey of the state of psychiatry in Russia, has gone to the trouble of learning and mastering the language so that he might be able to read and translate the Russian neuropsychiatric literature, which he has approached in a spirit of friendly objectivity. It is unfortunate that the mass hysteria engendered by political friction because of different ideologies encompasses the field of science and the exchange of ideas and that the publishers of this excellent book have thought it expedient to justify its publication. It is regrettable that the times are such that one must say that courage was required to write such a book.

Those who know the language, who have visited the hospitals and talked to some of the leading psychiatrists referred to in the book, can attest that Wortis's presentation is accurate. One must admire the industry of a man who had the patience and zeal to condense the literature of a generation in so prolific a field as neuropsychiatry into so useful a book

In Defense of Mothers: How to Bring up Children in Spite of the More Zealous Psychologists. By Leo Kanner, M.D , Associate Professor of Psychiatry, The Johns Hopkins University, Baltimore Second printing. Cloth. $3. Pp. 167, with decorations by Kurt Wiese. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave , Springfield, Ill., 1950.

It was to be expected that a book such as this would make its appearance, in view of the deluge of "scientific" advice and instruction on raising children that has overwhelmed parents, and especially mothers, in the last few years. Perhaps it is even overdue, but in any event it will be welcomed by physicians, who are so often caught in the difficult position of being obliged to admit that psychiatry and psychology have definite places in child development and yet recognize that more harm than good can come from overapplication of these. Kanner's background of experience commands respect, and the freshness and matter-of-factness of his approach are sure to have a reassuring effect on the contemporary mothers whom he addresses in the first chapter. Chief theme of the book is that present day mothers have been forced into a status of such uncertainty by zealous psychologists that they are losing all sense of proportion and ordinary common sense. This is illustrated vividly in numerous chapters, among which may be mentioned "the devil on the wall," "prevention which does not prevent," "mother love and smother love," and "the what's-it called sex education." Superstitions are dealt with effectively, the chronic complainers (most of whom are from the ranks of pampered children, Kanner states) and their motivations are indexed, and habits such as thumbsucking are brought once more within the range of parental understanding. In a chapter on the Great God Unconscious, Kanner "exposes" the Oedipus and Electra complexes developed by Freud and offers equally penetrating comments on the ego. Especially well done is a chapter reassuring parents of children who may deviate to a greater or less degree from physical and mental normals. This volume can be recommended unreservedly by physicians to parents seeking a way out of the maze of modern management of children.

Playgrounds: Their Administration and Operation. Prepared for National Recreation Association by George D. Butler. Second edition Cloth. $4. Pp. 459. A. S. Barnes and Company, 101 Fifth Ave, New York 3, 1950.

This is a completely rewritten revision of a volume that has been a basic reference for recreation leaders and a textbook for students in the field since the first edition appeared in 1936 Much new information has been added, including a section on the expanded role of the neighborhood playground, descriptions of modern programs and suggestions on how to meet many diversified playground problems. The book is especially noteworthy for its practicality; it reports promising practices that have grown out of actual use in superior programs. Included are materials on selection, training and organization of the staff, use of areas and facilities, development of seasonal activity programs and public relations and finances. The application of principles of good leadership to playground management is emphasized throughout. Physicians who serve on recreation commissions, school boards or other groups responsible for playground development will find the book of real value. Of special interest is the chapter on health and safety, in which are set forth good general principles for accident prevention, emergency care in case of accident or sudden illness, communicable disease control and sanitation and personal hygiene on the playground

Schistosomiasis in South Central Africa: A Clinico-Pathological Study. By Michael Gelfand, M.D., M.R.C.P. Accepted as the thesis for the Degree of Doctor of Medicine of the University of Cape Town Cloth. 25s. Pp. 239, with 23 illustrations. Published for The Post-Graduate Press by Juta & Co., Ltd., P. O. Box 30, Cape Town; P. 0 Box 1010, Johannesburg, 1950.

This monograph represents a fairly comprehensive review of the clinical aspects, diagnostic features and pathology of schistosomiasis in Africa, due to Schistosoma haematobium and/or S. mansoni. The area involved covers the population of south central Africa and Southern Rhodesia but also includes laborers from Northern Rhodesia, Portuguese Africa and Nyasaland. The monograph is divided into an introductory chapter, which describes the terrain and biologic aspects of schistosomiasis, chapters dealing with incidence figures and detailed chapters dealing with urinary, intestinal and pulmonary schistosomiasis, schistosomiasis of the liver and adnexa, of the central nervous system, of the female genital organs and, finally, a chapter on diagnostic aids.

The author contributes much information, apparently based on his own experience, but not hitherto contained in published material. This is especially true in the chapter dealing with central nervous system schistosomiasis, where he states that involvement of the brain by S. mansoni or S. haematobium occurs with significant frequency. This is contrary to general experience, in that practically all hitherto published material relates schistosomiasis of the brain to S. japonicum. Issue can perhaps be taken with conclusions related to the correlation between cirrhosis and schistosomiasis and the insignificance of pulmonary disease in schistosomiasis. This may be true in Africa. This book is useful particularly to physicians who work in areas where this disease is endemic.

Clinical Orthoptic Procedure: A Reference Book on Clinical Methods of Orthoptics. By William Smith, O. D., Associate Instructor in Optometry and Instructor of Orthoptics and Visual Training Massachusetts School of Optometry, Boston, Massachusetts. Cloth. $8. Pp 393, with 70 illustrations. The C. V. *Mosby Company*, 3207 Washington Blvd., St. Louis 3, 1950.

Orthoptics, the process of training and developing comfortable binocular vision in persons with muscular imbalance and fusional imperfections, has been receiving increased attention in the ophthalmologic world in the past decade. In its broader applications it has been universally accepted, but there remains considerable controversy as to the limits of its practicality and the type of case in which it should be advocated.

This volume deals entirely with the practical clinical use of orthoptics and is of interest to ophthalmologists and orthoptic technicians. The author tends to be overly enthusiastic and is not inclined to be sufficiently critical of the limitations of this form of therapy. Discussion of exact diagnoses is somewhat inadequate, and, while some general material is presented on the various forms of muscular imbalance, emphasis is placed on description of individual cases, their treatment and cure. There is insufficient comment on the relation of refractive errors and the importance of cycloplegic refractions, as is perhaps to be expected from one with an optometric background. No mention is made of atropine in the cure of accommodative spasm, for which orthoptics is recommended instead. There is a short chapter on reading disabilities, most of which are on a psychological rather than an optical basis. There is a rather complete description of all instruments used in orthoptics, which is instructive to those who have been confused by the various names given by the manufacturers, but little attempt is made to make any comparative evaluation. It is doubtful that any conclusion can be drawn from the report of two cases of myopia "arrested" by orthoptics, as the progress of the myopia might have ceased without any such treatment. In any field as new as orthoptics there are, of course, legitimate reasons for variations in technics and for overenthusiastic interpretations, which will in time seek levels of accepted practice. This book is recommended in spite of its defects to anyone with sufficient background for critical evaluation.

Der Film als Experiment und Heilmethode. Von Dr. Jaromir Lhotský. Mit einem Beitrag: Vergleichspunkte zwischen Film und Traum. Von Univ.-Professor Dr. Otto Pötzl. Paper. 30 Austrian schillings; 10 marks; 10 Swiss francs. Pp. 136, with 21 illustrations. Verlag Wilhelm Maudrich, Spitalgasse 1 B, Wien IX, 1950.

Dr. Lhotský first considers the psychology of the motion picture from the standpoint of the motivations, emphathies, symbolisms and fantasies of both the exhibitor and the observer. This discussion, though it strives to be eclectic, is generally slanted toward the constitutional and phenomenologic approaches currently dominant in continental academic circles. Subsequent chapters deal with the use of films as media in character testing, psychiatric diagnosis and criminologic investigations, with or without concurrent data as to simultaneous variations in respiration, pulse, "psychogalvanic reflexes" and other physiological functions. Special types of films are then discussed, together with the technics appropriate to their use in specific fields of investigation. In a final chapter, Pötzl likens the experience of viewing a two-dimensional film to the tridimensional imagery of dreaming or the hallucinations of schizophrenia, without attempting to explore the deeper dynamic and symbolic appeals of plot, imagery, symbolic communication or character identification.

Unfortunately, the book not only neglects or minimizes many of the modern analytic and projective approaches to the field of cinematography but ignores the work of many American contributors, such as Darrow, Lasswell and others. Nevertheless, it is an interesting and valuable summary of the European literature in an important and promising, but hitherto neglected sphere of research.

A Text-Book of X-Ray Diagnosis by British Authors in Four Volumes. Volume IV. Edited by S. Cochrane Shanks, M.D., F.R.C.P., F.F.R., Director, X-Ray Diagnostic Department, University College Hospital, London, and Peter Kerley, M.D., F.R.C.P., F.F.R., Director, X-Ray Department, Westminster Hospital, London. Second edition. Cloth. $15. Pp. 592, with 553 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St, Shaftesbury Ave., London, W.C.2, 1950.

Volume 4 is the first published volume of the second edition of this work. The new material that is available in the ever increasing field encompassed by radiology necessitates a new arrangement of the book into four volumes: (1) the head and neck, (2) the chest, (3) the abdomen and (4) bones and joints. Radiologists everywhere have regarded the work of these British authors as one of the best and more definitive publications on the subject. There is little to criticize about this volume except the positive illustrations. It is to be hoped that in subsequent publications the roentgenographic illustrations will be done with negative halftones. This volume contains essentially the same material as was contained in the chapters on bones and joints in the previous edition, with pertinent additions in the form of text and plates. The publishers are to be congratulated on the excellence of the format and the composition of the book.

Meat and Meat Foods: Processing and Preservation from Meat Plant to Consumer. By Lloyd B. Jensen, Ph.D., Chief Bacteriologist, Swift & Co., Chicago. Cloth. $3.75. Pp. 218, with 3 illustrations. The Ronald Press Company, 15 E. 26th St., New York 10, 1949.

This book is one of the Humanizing Science Series, edited by Jaques Cattell, editor of "American Men of Science." Its language is simple and nontechnical. It is intended for laymen. The procedures used in meat processing are described, starting from the farm and proceeding through the packing plant to the consumer's table. This book will be interesting to such persons as meat inspectors, refrigeration engineers, meat dealers and operators of deep freeze lockers and to anyone who wants to know the story of meat production. The aim of using nontechnical language is achieved quite nicely by the author. A person with no basic knowledge of meat processing will find this book very readable and for the most part understandable. There are, of course, a few instances in which the author fails to explain fully the meaning of some terms, but in such cases the reader with some imagination can discern what the author means.

The first few chapters of the book deal with the basic principles and procedures of processing fresh and cured meats and the effects of bacteria on such meat. The chapters following take up in more detail the processing of the various types and varieties of meats. Each chapter contains a paragraph of background material which gives the reader the stimulus to read about the less interesting present methods. The last three chapters deal primarily with problems concerning the safe use of meat. The author has included an extremely interesting appendix of historical notes on the use of meat as a food. This takes the reader back to the cave man and through medieval times up to present day times. A reference bibliography follows this section. The author has done a fine job of removing the heavy material and presents a book which is accurate in detail and interesting.

Surgical Nursing. By Eldridge L. Eliason, A.B., M.D., Sc.D., Consulting Surgeon, Hospital of the University of Pennsylvania, Philadelphia, L. Kraeer Ferguson, A.B., M.D., F.A.C.S., Professor of Surgery, Graduate School of Medicine of the University of Pennsylvania, Philadelphia, and Lillian A. Sholtis, R.N., B.S., M.S., Assistant Professor of Surgical Nursing, Yale University School of Nursing, New Haven, Conn. Ninth edition. Cloth. $4. Pp. 728, with 336 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1950.

This completely revised edition is written for the student nurse to prepare her academically and clinically for the many situations with which she will be confronted in her professional life. The authors aim to present enough of the symptomatology with its anatomic and physiological background to enable the nurse to grasp intelligently the principles of treatment of surgical diseases and to appreciate the responsibilities in the care of her patient. In this edition, the social, economic and public health aspects of surgical disease are emphasized as well as the nutritional, physical and mental aspects of each illness. These topics demonstrate to the student the many influencing factors in the total consideration of the patient's welfare, which is the ultimate objective of modern nursing care.

The authors have not sacrificed the details of bedside nursing in their expanded discussions of pertinent sociologic factors. On the contrary, this subject itself has been amplified, and added attention has been given to the nurse's responsibilities in setting into motion the process of rehabilitation during the patient's hospitalization. The chapter on antibiotics and chemotherapy has been brought up to date. New approaches in neurosurgery and thoracic surgery and the specialized nursing care demanded in these fields are subjects that have been added. New material on the subjects of surgery of the heart and its great vessels, surgery of the sympathetic nervous system in the treatment of peripheral vascular disease and hypertension, surgical treatment of hypertrophic pyloric stenosis and ileostomy and colostomy have all been included in this edition. The surgical specialties units have been amplified with new material on corneal transplantation, retinal detachment and enucleation and fenestration.

The arrangement of subject matter is in units according to anatomic systems, although a change of sequence has been made to afford greater adaptability in teaching. Each unit is followed by a list of references and suggested reading, and more than 300 illustrations are included in the text. The type face and spacing have been changed to promote rapid reading. This book has considerable merit as a textbook for students and as a reference source for graduate nurses. It not only provides a thorough, up-to-date review of surgical nursing but also, through its approach, encourages a progressive attitude toward nurse-patient relations.

Nursing in Prevention and Control of Tuberculosis. By H. W. Hetherington, M.D., M.R.C.P., Chief of Clinic of the Henry Phipps Institute of the University of Pennsylvania, Philadelphia, and Fannie W. Eshleman, R.N., B.S., Supervisor of Public Health Nursing of the Henry Phipps Institute of the University of Pennsylvania, Philadelphia. Third edition. Cloth. $4.50. Pp. 361, with illustrations. G. P. Putnam's Sons, 2 W. 45th St., New York 19, 1950.

In this revised edition the authors attempt to present the subject of tuberculosis in all its aspects in such a manner that it will be readily understood by nurses without special training in the tuberculosis field and at the same time be sufficiently detailed to fill the needs of the more advanced student. Emphasis is on present day concepts of the tuberculosis patient and the health supervision of the patient's family.

Pertinent aspects of diagnosis, treatment, management and rehabilitation are thoroughly discussed. Furthermore, there are chapters dealing with the problems incident to tuberculosis in pregnancy, in infants and in children. Similarly, nursing care technics are presented which will provide effective practical approaches in the care of the patient in the hospital, the dispensary or clinic and in the home. Forcefully stressed are the implications of this disease to the community by the presentation of family case studies illustrating the insidious capacity of the disease for spreading throughout entire family groups. Interested in preventive measures to control this disease are various community agencies, whose functions and interrelated responsibilities with the nursing profession are pointed out.

In summary, this book typifies in its approach to the problems of tuberculosis the thinking which has been responsible for the present notable decline in the incidence of the disease. The value of improved care and public health methods of prevention are emphasized throughout. Inasmuch as this attitude is assuming ever-increasing significance in the present approach to diseases in general, it is particularly important that nurses in their formative stage of professional development be exposed to such a philosophy. For this reason, in addition to its clear comprehensive review of the subject of tuberculosis, this book has merit as a textbook for nurses.

Non-Gonococcal Urethritis Including the Genital Manifestations of Local and Systemic Diseases and Infestations of the Urinary Tract with Protozoa, Metazoa and Fungi. By A. H. Harkness, M.R.C.S., L.R.C.P., Joint Director of the Endell Street Clinic, St. Peter's and St. Paul's Hospitals (Institute of Urology), London. Cloth. $10. Pp. 424, with 167 illustrations. The Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1950.

This monograph is confined to a rather limited but important field of infection. The description of the various forms of nongonococcal urethritis, together with specific therapy indicated, is most thorough. The illustrations and plates are exceptionally well done and are instructive. It is evident that the author was well qualified to write on this subject and that he had unlimited material to draw from. However, one cannot help wondering whether the differentiation that is made among the various forms of urethritis may be of more academic interest than practical. The monograph should be of value as a reference book to those interested in urethritis. It is much too detailed to serve as a textbook for undergraduates.

Principles of Ophthalmology. By Thomson Henderson, M.D., Senior Surgeon, Nottingham and Midland Eye Infirmary, Nottingham. Cloth. $4.50. Pp. 230, with 63 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

The title of this book is misleading. It is a series of essays by an original thinker whose conclusions often run counter to what is generally accepted as fact in ophthalmic physiology and pathology. There are chapters on the angle of the anterior chamber, the intraocular pressure and glaucoma, the mechanism of accommodation and several other ophthalmologic subjects. The author's conclusions are drawn largely from comparative anatomy of the eyes of mammals. The book is stimulating but not to be read without a critical attitude.

Cerebral Palsy. By John F. Pohl, M.D., Orthopedic Surgeon, Michael Dowling School for Crippled Children, Minneapolis. Cloth. $5. Pp. 224, with 131 illustrations. Bruce Publishing Company, 2642 University Ave., St. Paul 4, Minn., 1950.

Until the last 10 years the patient with cerebral palsy was indeed the forgotten child. As an outgrowth of the interest and work for crippled children in general, of the combined federal and state programs for the care of the physically handicapped child and the tremendously expanded work of the National Society for Crippled Children and Adults, a patient with cerebral palsy now seems to be well on the way to becoming a favored child. Facilities and programs for the care of children with cerebral palsy are being added each year. There is the United Cerebral Palsy Associations, an organization now engaged in raising funds for hospitals and schools which will be devoted exclusively to the care and education of crippled children of this special category.

Pohl attempts to explain the etiology and pathology of cerebral palsy. The simplest possible language is used to describe the different types of this disease. The plan of treatment described by Dr. Pohl is confined for the most part to education of the child through supervised activities in which he must learn how to help himself. The need for the child to learn relaxation along with neuromuscular training is discussed. The modalities which are used as part of the program, including physical therapy, occupational therapy and speech training are duly emphasized. Surgical procedures are not discussed in detail. While there is nothing that might be considered either new or revolutionary, the book is clearly written and easy to understand. It should be of value to those who wish to become teachers in the field of cerebral palsy and to parents of children who are crippled by this disease.

Medical Parasitology for Medical Students and Practicing Physicians. By William G. Sawitz, M.D., Associate Professor of Parasitology, Associate in Medicine, The Jefferson Medical College of Philadelphia. Cloth. $4.25. Pp. 296, with 90 illustrations. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1950.

Here is a useful manual for the guidance of both laboratory and clinical students of parasitology. It presents the subject from the medical viewpoint without omitting essential zoological information and concepts. Not designed or intended to replace textbooks on the subject, it is nevertheless complete from the standpoint of essentials for the training of parasitologists. The organization, definitions and classification of various subdivisions of the subject are unusually clear and to the point. The book includes essential illustrations, most of which are excellent, though occasionally they are too diagrammatic. More color could have been employed to illustrate characteristic staining reactions, as in the case of malarial parasites. The chapter on treatment is complete to the point of inclusion of various pesticides and repellents as well as modern agents for the therapy of insect bites and internal parasites. Not the least important features are the vocabulary of technical terms and a carefully prepared index.

We Pass This Way. By Charles A. Cooper. Cloth. $3.50. Pp. 183. Exposition Press, 251 Fourth Ave., New York 10, 1950.

This is a novel written by a physician who practices in a small town in northern Michigan. The action of the story takes place in a copper mining village in the section where the author lives. It demonstrates the fact that to be a good physician one must be a keen observer of human nature, and Dr. Cooper has shown in this story that he has this quality. He has reduced to the printed page the thoughts and actions of many characters from all walks of life. These people for the most part lead drab, circumscribed lives and only occasionally break through the drabness. The author states in the first chapter, "The land don't change much. Men pass this way, and leave their marks, but a few years, an' you can't hardly tell there was a thrivin' community here. Mighty near never left a trace." The story makes interesting reading.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

VOCAL TRAINING

To the Editor:—Is it possible to increase the potency of a speaker's or a singer's voice? To obtain a long emission without being tired? To extend the gamut tonality in which range a voice may develop? To free a timbre from unpleasant harmonics? Which scientific methods are adequate to obtain these results? Is there any treatise dealing with these problems and with the hygiene and care of the voice for the use of speakers and singers? Is there any specialist in phonology in an established school for declamation, singing or similar arts whom it would be possible to consult in specific cases? M.D., Havana.

Answer.—It is possible to increase the potency of a speaker's or a singer's voice, obtain a long emission or speak continuously without fatigue and to free the timbre from unpleasant harmonics. The pitch range of a voice may be extended but may involve great harm to the vocal cords in most persons. Forcing the voice in any manner is harmful. Many vocal difficulties are brought about by irritation from misuse of the voice and often result directly from vocal instruction by vocal teachers who are not scientifically trained. Scientific methods have been developed in which ease of phonation, natural pitch range, diaphragmatic breath control and avoidance of glottal attacks are of the most importance. A recommended book dealing with some of these problems is "Training the Speaking Voice," by Virgil Anderson (New York, Oxford University Press, 1942). No adequate book has been published dealing with these problems, since it is a subject which only in recent years has been placed on a scientific basis.

Scientifically trained phonologists are few. They are persons with university degrees in speech therapy who have specialized in voice. Some of the certified members of the American Speech and Hearing Association (Speech Clinic, Wayne University, Detroit, Mich.) are qualified to do this work. The departments in the United States which have specialized in voice are the School of Speech, Northwestern University and Temple University Medical School. Work of this type should be conducted only in consultation with laryngologists.

LEAD AND ZINC INDUSTRIAL HYGIENE

To the Editor:—Please furnish me with data concerning (1) an easily performed, rapid test for lead in urine and for zinc, (2) a method of preparing the copper sulfate solutions for the falling drop method of determining specific gravity of blood, (3) toxicity of zinc, symptoms and treatment and (4) a short bibliography of material dealing with lead and zinc industrial hygiene. M.D., California.

Answer.—1. There is no "easily performed, rapid test for lead in urine." All of several available quantitative tests are exacting and require skill above the usual clinical laboratory level. The details of any one method are too extensive to permit presentation here, but full data may be obtained in the book by H. B. Elkins (The Chemistry of Industrial Toxicology, New York, Wiley and Sons, Inc., 1950) or that by M. B. Jacobs (Analytical Chemistry of Industrial Poisons, Hazards, and Solvents, New York, Interscience Publishers, 1949, vol. 1). The procedures required for zinc determinations similarly may be found in the publications mentioned.

2. The exact strength of the several solutions of copper sulfate as applied in the falling drop method of specific gravity of blood measurement is critical and calls for precise standardization. On this account it is somewhat impractical to prepare these test solutions in small laboratories. Prepared materials are supplied by Anachemia, Ltd., through any good laboratory supply firm. The required solutions and procedures are discussed in an article by Atchley and co-workers (Copper Sulfate Method for Measuring Specific Gravities of Whole Blood and Plasma, *J. Lab. & Clin. Med.* 30:830, 1945) and in one by Muirhead and co-workers (Practical Observations on the Copper Sulfate Method for Determining the Specific Gravities of Whole Blood and Serum, *Surg.-Gynec. & Obst.* 82:405, 1946).

3. By some definitions zinc is not a toxic agent, but some of its salts are, such as the chloride. Freshly produced zinc oxide in the form of fume is one of the several metals that may lead to metal fume fever, better known as zinc chills or zinc ague. This acute disease (there is no known chronic form) arises oftener in foundries where zinc is a constituent of the metal poured, such as brass foundries. Several hours after exposure, the victim undergoes pronounced chilling resembling a malarial chill and complains of pronounced and unquenchable thirst; there may be present an elevated temperature. All this may be followed in a few hours by pronounced fatigue, malaise and distaste for food. Ordinarily no time is lost from work. Day by day these episodes may recur in varying severity. Real treatment is elimination of exposure. Otherwise the treatment is symptomatic and treatment may not be required.

4. The following books furnish both pertinent data and extensive bibliographies: "Lead Poisoning," by A. Cantarow and M. Trumper (*Baltimore, Williams & Wilkins Company, 1944*) and "Industrial Hygiene and Toxicology," by F. A. Patty (New York, Interscience Publishers, 1949, vol. 2).

FEVER OF UNDETERMINED ORIGIN

To the Editor:—Many patients with "fever of undetermined origin" receive the usual laboratory examinations, get well and leave the hospital without a diagnosis. I feel that more exhaustive studies can be done in these patients. Please discuss the differential diagnosis in the following hypothetical case and name the laboratories where the more unusual types of studies can be done: A 30 year old, previously healthy white man enters the hospital because of malaise and fever. His temperature over a 14 day period is normal. Repeated roentgenograms of the chest, urinalysis and blood cultures are not revealing. Stool cultures are negative. Results of serologic studies and blood agglutinations for brucellosis, Salmonella, typhoid, paratyphoid, tularemia and heterophil antibodies are negative. The blood cell count is normal.

Richard R. Grayson, M.D., Lubbock, Texas.

Answer.—In the foregoing case, of an acute febrile illness occurring in a previously healthy man with quick return of the temperature to normal, one can rule out certain well known causes of "fever of undetermined origin," including carcinoma, lymphoblastoma, leukemia and probably bacterial infections such as tuberculosis. The commonest cause of this type of illness is a virus. To define the virus responsible for the illness is difficult. There are a number of viruses causing respiratory disease which may cause an atypical clinical picture as described. The diagnosis of viral diseases is time consuming and can be carried out only by special laboratories. The laboratories of many state boards of health, as well as the Communicable Disease Center of the United States Public Health at Atlanta, Ga., are prepared to carry out these studies. In general, two methods are utilized for identifying the viral disease. One is by isolation of the virus from the tissues, body fluids or secretions by appropriate procedures. The other method is by ascertainment of the presence of antibodies in the blood. For the latter purpose, the serum would be collected under sterile conditions during acute and convalescent stages of the illness. Further discussion of this subject is included in "Routine Laboratory Diagnosis of Virus and Rickettsial Diseases," by Albert Milzer (*J. A. M. A.* **143**: 219 [May 20] 1950.)

ABSCESSED TEETH

To the Editor:—In acute dental alveolar abscess with swollen jaw and fever, what is the medical management prior to extraction of the abscessed tooth? What measures are recommended after extraction of a tooth which results in similar symptoms? From time to time the general practitioner is asked to treat this condition.

Irving I. Crouse, M.D., Buffalo.

Answer.—Treatment of acute infections about the jaws does not differ basically from treatment of similar infections elsewhere. The major consideration is the proximity of the infected tooth to the bone and the concomitant bacteremia. The patient should be adequately prepared with antibiotic therapy prior to the extraction. Roentgenographic examination and a complete blood cell count are also desirable. Postoperative treatment should include the use of a saline mouth wash or irrigation. Extraoral heat and surgical drainage and hospitalization should be considered. Antibiotic therapy, diet, fluid intake and analgesics are important aspects of medical management. Further information may be obtained in standard oral surgery textbooks.

INFANTILE GENITALIA

To the Editor:—A 10 year old boy has a penis less than 2 cm. in length; the scrotum is small, and the testes are peanut size. The organs have not shown any development from infancy. He is sensitive about it, as the boys at school tease him. He is a little over normal height and weight, and in the past few months he has become a bit chubby. There may be a slight tendency toward girdle obesity. He was delivered by cesarean section and has always been of "frail" health. He seems bright in his school work. Would hormone therapy be indicated? Is testosterone or pituitary gonadotropic hormone recommended and in what dosage?

Owen Wheeler, M.D., Portland, Ore.

This inquiry was referred to two authorities, whose respective replies follow.—Ed.

Answer.—One frequently sees boys, prior to adolescence, in whom the genital organs may be described as infantile. It is remarkable how often this defect is remedied by adolescence. It would be unwise to try hormone therapy at this time, because when it has been employed prior to adolescence the results have been anything but satisfactory; in some cases such treatment has been injurious. It would be well to wait until after adolescence and employ these therapeutic agents only in case the genital organs remain abnormal. The patient should be informed of this fact and told not to despair of eventual normal manhood.

Answer.—This boy is nearing the age at which normal pubertal development usually occurs. One probably would be wise to wait until he is 12 or 13 before considering hormone therapy. The fact that the testes are in the scrotum suggests that, if he does not develop sexually, the diagnosis would be secondary hypogonadism. This means that there is insufficient stimulation of the gonads by the pituitary. However, the gonads may prove to be refractory to pituitary stimulation. One should try chorionic gonadotropins in this case first. This substance is mostly luteinizing hormone, producing its effect on the interstitial cells of the testis, causing the testis to produce androgen. Suggested dosage is 500 units of chorionic gonadotropin twice a week for two or three months. If no effect is observed, then androgens should be given in small doses to permit determination of a maintenance dose, such as 10 mg. of methyl testosterone orally once a day for a month or six weeks, the dosage being varied depending on response. This is substitution therapy and would hardly be expected to produce a normal set of gonads; it would merely fill the body needs for androgens.

PARKINSONISM

To the Editor:—Please discuss treatment of idiopathic parkinsonism in the light of Sigwald's report of benefit from 10-(2-diethylaminopropyl) phenothiazine hydrochloride (RP 3356), abstracted in *The Journal* March 18, 1950 (page 853). P. W. Van Metre, M.D., Rockwell City, Iowa.

Answer.—Both RP 2987 (diparcol) and RP 3356 (parsidol) have been reported on in the French literature by Sigwald. An elaborate technic for their clinical use was worked out by him, the dose being arranged throughout the day so that the side effects were minimal. When they did appear, Sigwald counteracted them with specific drugs, such as *d*-amphetamine sulfate for drowsiness. In these circumstances, the results were impressive. Other workers are less enthusiastic, and in one series only one third of the patients receiving diparcol showed improvement and only one half receiving parsidol were benefited. It is possible that the discrepancies between these reports are due to the fact that the American investigators did not carry out in detail the technic suggested by Sigwald. Both drugs are still under investigation and are not acceptable at the present time as drugs that should be widely used for parkinsonism.

OIL FORCED INTO FINGER

To the Editor:—A man punctured his finger with a drill. The drill is hollow, and a stream of oil constantly flows through it under pressure. The finger was immediately tense and swollen, and the man had great pain. It was incised in the flexor surface to the tendons and allowed to remain open. The finger gradually healed, but it has remained nearly double its normal size and is tense and indurated. This swelling extends down into the hand along the second metacarpal. It is now almost five months since the accident, and the condition seems to be more or less stationary. There is practically no useful function in this finger. The man heard that injections of ether have been used for conditions similar to his. Has such treatment been successfully used? W. H. Cole, M.D., Elizabeth, N. J.

Answer.—Oil forced into the soft tissues causes severe and extensive fibrous tissue reaction. Since five months have elapsed since the accident and there is no useful function of the finger, the only practical solution of the problem is amputation. If this is carried out, every effort should be made to excise the scar tissue about the metacarpal as completely as possible. Injections of ether would add further insult to the injury which has already been sustained.

THE SWIMMING HOLE AND POLIOMYELITIS

To the Editor:—The local health board has posted a small stream against swimming for the past two years, believing it to be a possible source of poliomyelitis for the following reasons: Once weekly the town garbage is dumped and burned with gasoline in an area 150 yards from the stream; about 1,000 yards downstream a small dam forms a popular swimming hole. The posting of this latter spot has aroused a certain amount of community ire. Are we justified in supposing that poliomyelitis can be a menace here? N. E. Patrick, M.D., Factoryville, Pa.

Answer.—It does not seem likely that the garbage dump to which you have referred is a potential source of poliomyelitis virus, especially since it is regularly disposed of by burning. In addition to this, the virus of poliomyelitis has never been recovered from swimming pools; in the one or two recorded instances where it has been isolated from moving streams the opportunities for contamination were much more obvious than they appear to be in this instance. It may be that the local health officer has found the stream to be otherwise polluted, and, therefore, closure of the swimming hole might be justified but not primarily because of the danger of poliomyelitis.

PYORRHEA AND RETINAL HEMORRHAGES

To the Editor:—A 27 year old woman decided some months ago to have her teeth removed because of pyorrhea. She has been a diabetic since the age of 11 years. She was being treated by another physician and was under good control for diabetes; she was on a balanced diabetic diet and took 60 units of protamine zinc insulin a day. The dentist then extracted all her lower teeth; a short time after this she had massive hemorrhages of the right eye. No relation between the extractions and hemorrhage being evident, extraction of the upper teeth was then begun, with removal of four or five at a time. Retinal hemorrhages then began to develop in the left eye. Is there any relation between the removal of such teeth and retinal hemorrhages in diabetics? Once retinal hemorrhages occur in these patients is there any cure for them? What is the prognosis?

Abraham A. Kaufman, M.D., Binghampton, N. Y.

Answer.—This interesting problem cannot be answered with certainty. It is also unusual. There is nothing which would relate the massive retinal hemorrhages to the extraction of teeth. They could be coincidental. They could be related to the surgical procedures if a general anesthetic was used, though anesthesia is not mentioned in this case. The safest procedure to be used for extractions should consist of a constantly good control of the diabetes and the removal of a small number of teeth with local nerve block.

Therapy for the retinal hemorrhages should also consist of good management of the diabetes. Hemorrhages are concomitants of the disease and may be expected. There is always some improvement of the acute phase, with absorption of the blood in the retina, but a scar and impairment of vision often results. Attempts to treat the hemorrhage with vitamin P (rutin) have not had constant success. The hemorrhagic condition is not related to the vitamin C intake. The prognosis is not entirely serious, since the appearance is not always progressive and may subside. If retinitis proliferans accompanies the event, the prognosis is poor.

SUBACUTE COMBINED DEGENERATION OF SPINAL CORD

To the Editor:—My condition has been diagnosed as lateral posterior sclerosis of the spinal cord. What is the cause, prognosis and accepted treatment for this condition? Please give the differential diagnosis between lateral posterior sclerosis and multiple sclerosis. M.D., Missouri.

Answer.—Posterolateral sclerosis of the spinal cord is perhaps better termed and is usually referred to as subacute combined degeneration of the spinal cord. The disease syndrome has manifestations of lesions in the spinal cord and peripheral nerves. It is usually associated with pernicious anemia but infrequently is also seen in secondary anemia and severe dietary inadequacies. The etiology has not yet been adequately described. Some authors have held that subacute combined degeneration was the result of neuroanemia. Offered in support of this contention was the fact that in most cases the thoracic portion of the spinal canal, which has a relatively poor blood supply, was the region most seriously involved. It is more likely that the disease results from effects of nutritional deficiencies. It has been described as occurring in pellagra, sprue, carcinoma of the stomach and hepatic disease. If recognized early in the course and before spinal cord changes are severe, neurological manifestations are frequently reversible. Treatment must be directed at the underlying or associated disease. In the treatment of pernicious anemia, the administration of potent liver extracts and/or vitamin B_{12} will protect against the development or effect remission of subacute combined degeneration of the spinal cord. Pteroylglutamic acid is not effective in this regard. The provision of vitamin B complex as a part of the therapeutic regimen may control symptoms of peripheral neuritis, which frequently accompanies this disease.

Subacute combined degeneration of the spinal cord is characterized by sensations of numbness and tingling of the hands and feet and by increasing paralysis of the legs and hands. These symptoms may also be associated with multiple sclerosis, which may have a wide variety of neurological manifestations and may simulate many other diseases of the central nervous system. Multiple sclerosis chiefly affects persons in the age group of 20 to 35 years, whereas subacute combined degeneration of the cord occurs more commonly after middle life. The latter disease is progressive, presents no ocular symptoms and produces loss of sphincter control late in its course. Deep reflexes are usually absent. In contrast, multiple sclerosis is remittent in its course, is associated with transient diplopia, blindness and blurring of vision and affects sphincters in its early stages. Deep reflexes are rarely absent in this disease. The demonstration of macrocytic anemia and gastric achlorhydria is evidence in favor of the diagnosis of subacute combined degeneration of the cord, since this is so commonly associated with pernicious anemia.

ALCOHOL FOR ANGINA PECTORIS

To the Editor:—I have a moderate degree of coronary sclerosis and a slight disturbance of the peripheral circulation. I have been advised by competent physicians to use a moderate amount of whiskey. I have been using six year old whiskies, bonded or straight bourbon. However, I have been advised that blended whiskey, made of whiskey and neutral spirits, is just as good for me. Is this correct? M.D., Ohio.

Answer.—Alcohol in moderate amounts has been used for the relief of angina pectoris ever since it was first recommended by Heberden. Alcohol is of no value in the management of the acute attack, inasmuch as the attack usually subsides spontaneously, before alcohol could have an effect. For this reason the nitrites are of more value in aborting the acute attack. Many physicians suggest that alcohol be used in coronary artery disease, because of its vasodilating effects and because of its analgesic and sedative actions. These effects are due to the alcohol itself and not to the extractives or aromatics. Aging of alcohol acts to change the fusel oils and aromatic compounds, resulting in the removal of irritants which are present in some of the neutral spirits, and provides special aromas, depending on the method of aging. These latter are of gustatory value only. Blended whiskies are just as efficacious in producing the desired effects in angina pectoris as are the bonded varieties. A word of caution should be sounded against the danger of habituation.

HEMIHYPERTROPHY

To the Editor:—A girl born Sept. 12, 1946, after an uneventful delivery, weighed 9 pounds 7 ounces (4,281 Gm.) at birth. At 2 weeks of age she seemed to have choking spells with slight cyanosis, followed by a minute or two of limpness. There were no convulsions. The child had two spells, and in one the lips were decidedly cyanosed and the face very pale. No irregularity of the heart was noted. The temperature, urine and bowel movements were normal. The thymus appeared decidedly enlarged on fluoroscopic examination. In the third week of life the mother noticed that the left cheek, the left arm, the left side of the body and the entire left lower extremity were larger than the right. Roentgenograms of the long bones on both sides showed no difference in size between the two. A pediatrician diagnosed hemihypertrophy due to an ovulation-fertility phenomenon, in that the pregnancy should have been a twin pregnancy, so that the end-product shows a twin effect. What will this girl look like as an adult? Would plastic surgery result in a closer to normal appearance? Could some abnormality of the great vessels or the heart produce this picture? M.D., Minnesota.

Answer.—Hemihypertrophy is a rare congenital abnormality, the cause of which is unknown. In not a few instances it has been associated with retardation in mental development.

It is not possible to predict the future appearance of a given child who exhibits the condition. However, it is stated that the hemihypertrophy may partially or entirely disappear, at least so far as it would be noticeable to other persons. There is no indication for the employment of any plastic operation, especially since improvement can be expected with advancing age.

TINNITUS AURIUM

To the Editor:—For best results in tinnitus aurium, how frequently may vitamin A (ampuls of 1 cc., 50,000 units) be injected?

M.D., Pennsylvania.

Answer.—The generally accepted treatment with vitamin A for tinnitus consists of giving 1 cc. (50,000 units) intramuscularly twice a week. A six week period of treatment is usually sufficient to indicate effectiveness. There is, however, no well controlled clinical study to indicate the effectiveness of vitamin A in the treatment of tinnitus.

ANTIBIOTICS BY MOUTH AND VITAMIN ABSORPTION

To the Editor:—A well informed physiologist made the statement that all patients subjected to oral treatment with chloramphenicol, aureomycin or terramycin should receive concomitant parenteral or intravenous supportive vitamin therapy (particularly B complex and C), because these antibiotics drastically retard or wholly inhibit absorption of vitamins from food or from orally administered vitamin concentrates. Is this true?

M.D., Texas.

To the Editor:—Reactions to oral administration of aureomycin have been occurring with disturbing frequency in our locality. They consist of stomatitis with fissuring of the angles of the mouth and, frequent, vaginitis and inflammation of the rectum, similar to reactions seen in some patients given penicillin orally. The patient complains of a burning sensation from mouth to anus and sometimes diarrhea. I would appreciate any recommendations you can offer.

Donald E. Minch, M.D., Lakeview, Ohio.

Answer.—Satisfactory evidence is lacking that any of the newer antibiotics either retard or inhibit the absorption of vitamins from ingested foods or from capsules and tablets of such vitamins administered by the oral route. Disturbances in the function of the colon do occur when aureomycin, chloramphenicol or terramycin are given in appreciable doses. For example, bilirubin appears in the stool. This occurs because these antibiotics suppress the growth of or actually kill susceptible, normally occurring bacteria in the colon and in other places, such as the mouth and pharynx. When this occurs, organisms which are resistant to the bacteriostatic or bactericidal effects of these antibiotics replace the normal bacterial flora. Naturally, the suppression of normally occurring bacteria, especially in the colon, brings about pronounced changes in bacterial metabolism. This accounts for the disturbances so frequently noted in the stools and the elimination habits of patients who are receiving these newer antibiotics. When aureomycin, chloramphenicol or terramycin are being administered, lesions may occur on one or more of the mucous surfaces of the body. It has been established that in certain patients these lesions are produced by, or become infected with, yeastlike organisms, of which Monilia are the commonest. Also, it seems that lesions of the mucous membranes may sometimes be due to vitamin B complex deficiencies when the newer antibiotics are being administered. Therefore, when mucous membrane lesions make their appearance, one should first establish whether these lesions are due to an infection with Monilia or to a vitamin deficiency. When this determination has been made, proper therapy may be instituted.

Evidence seems to be accumulating that it is logical to administer by mouth the recommended requirements of vitamins (especially those of the B complex) as a supplement to dietary vitamins, to all patients who are receiving 2 Gm. or more of aureomycin, chloramphenicol or terramycin per day, for a period of five or more days. Patients receiving these doses of these antibiotics frequently do not have a normal vitamin intake from food because they are nauseated. There is little if any evidence that vitamins should be administered parenterally or intravenously to patients receiving these antibiotics, unless they are very ill or unless the physician feels that the patient's vitamin intake had been deficient prior to treatment with any of these newer antibiotics.

COMBINED INJECTIONS

To the Editor:—Can tetanus toxoid and 400,000 units of aqueous penicillin (procaine penicillin G and penicillin G, crystalline potassium) be administered together in a syringe through the same needle puncture without any harm to the action of each? Can tetanus antitoxin, following the skin test, be combined with 400,000 units of penicillin for injection? Frederick H. Bowen, M.D., Jacksonville, Fla.

Answer.—The combination of penicillin with either tetanus toxoid or tetanus antitoxin should cause no harm to the action of any of the ingredients. However, if the contents remain long in the syringe before expulsion, there may be blocking of the needle.

LOW SODIUM DIET

To the Editor:—A patient has raised the question as to whether a mold inhibitor, sodium propionate, sold under the trade name of mycoban, would be sufficient to affect a low sodium diet. M.D., Missouri.

Answer.—It is necessary that one be on guard against concealed sources of sodium in the diet. An example, which is often unsuspected, is the custom of many restaurants of adding salt to their coffee. Inquiry of several large baking companies elicits the information that most of them do not use mold inhibitors. Calcium propionate is used in some baked articles. Sodium propionate, when employed, is in the proportion of 2 to 4 ounces to 100 pounds of flour, or about 160 pounds of bread. The amount, therefore, is too small to be significant in a low sodium diet for ordinary practical purposes. It can be significant only under experimental or exceptionally severe conditions.

STERILIZATION OF LANCETS

To the Editor:—Since publication of the article by Dr. Walter Ward and me in THE JOURNAL (June 17, 1950) I have received inquiries concerning the proper sterilization of a lancet used for finger or ear puncture when doing blood cell counts, so as to avoid the possibility of transmitting a virus infection. Many physicians do not have autoclaves or ovens in their offices, and the question of a substitute arises. Some suggest having enough blades on hand so they can be put in a sterilizing solution overnight. Would this be better than using boiling water for 20 to 30 minutes?

Clifford Kuh, M.D., Oakland, Calif.

ANSWER.—Chemical agents cannot be relied on to destroy the virus of homologous serum jaundice. In view of the availability of electric hot plates, pressure cookers and miniature, electrically operated autoclaves, there is no excuse for one's not exercising adequate procedures for the disinfection of instruments by heat. Some clinical laboratories are guilty of careless handling of syringes, needles and lancets utilized for the collection of blood specimens.

Contaminated instruments may be placed in solutions of chemical disinfectants prior to heat treatment. A preliminary heat treatment in boiling water for 15 minutes will minimize the danger of accidental infection. Organic material such as blood and pus will coagulate during the preliminary heating; the larger particles can be removed by mechanical cleansing, and the smaller particles will dissolve in hydrogen peroxide or dilute ammonia water. Final disinfection by heat can be effected by submersion in boiling water for at least 15 minutes, the timed interval to begin after the water begins to boil.

Lancets utilized for collection of micro blood specimens from the finger or ear lobe should be solid and without holes or sleeves. A clean, sterile instrument should be utilized for each subject. Lancets may be subjected to the procedure outlined above, or terminal sterilization may be effected in the flame of a Bunsen burner or alcohol lamp.

Syringe technic in preventing serum jaundice is described in Queries and Minor Notes, page 579, June 11, 1949.

TINY VENULES ON THIGHS

To the Editor:—Several white women, aged 20 to 30, have large numbers of superficial telangiectases on their thighs. Please discuss etiology and treatment.

Richard R. Grayson, M.D., Lubbock, Texas.

ANSWER.—Often such vessels are composed of tiny venules rather than telangiectases. They are of no importance other than that they constitute a cosmetic defect. They may be destroyed by electrolysis, by punctate electrocautery or by careful injection of a drop of a sclerosing agent, but the results obtained are in many instances not satisfactory.

POSTURAL HYPOTENSION

To the Editor:—A patient apparently has postural hypotension. She is 65 years old and until six months ago had had essential hypertension (with a systolic pressure said to be around 220) for years. Six months ago she had a coronary occlusion, for which she was hospitalized for two weeks and in bed at home for two weeks. About two weeks later she had an illness, diagnosed as a virus infection. Then she complained of weakness and dizziness on walking; she has remained in bed since, getting out only to go to the toilet or for occasional meals. The patient is described as somewhat given to complaining, always busy but of very limited interests. Her husband has been dead for 10 years. About a year ago, a niece was killed in an automobile accident. This patient complains of burning and pains in the palms and soles, fulness after eating and lack of appetite. She has attacks of anxiety and once vomited. Another time she complained of the room turning about her if she closed her eyes. Reassurance seemed to relieve these episodes. The only positive observations after a week of hospitalization were a duodenal diverticulum (second portion) and postural hypotension. At rest, her blood pressure is usually 170/100. On standing or walking for a minute it drops to 120-130/80-90. These observations were repeated many times. Ephedrine sulfate, amphetamine sulfate, a visammin preparation by mouth and desoxycorticosterone had no apparent effect on the postural hypotension. A neurologist could find no organic lesion and felt that many of the patient's symptoms could be explained on a psychoneurotic basis; nevertheless, he was unwilling to let that be the entire diagnosis and suggested the patient be watched for further development.

M.D., New York.

ANSWER.—One can only guess the cause of the hypotension in this patient, the most likely guess being lack of tonic response of the visceral blood vessels due to the antecedent virus infection. Possibly the myocardium has been sufficiently weakened as the result of infarction so that it does not respond adequately. This seems unlikely. Some disturbance of the sympathetic nervous system is still another possibility, which one could test by blocking the ganglions with tetraethylammonium chloride to determine whether blockage gives a less than normal vascular response when the patient assumes the erect posture. Since the mechanism is unknown, one can only recommend empirical measures: The patient should (1) sleep in a bed raised at the head, (2) have a corset designed to assure greater return of blood from the abdominal area to the heart, (3) exercise to strengthen the muscles of the abdominal wall, (4) take moderate outdoor exercise and (5) discontinue taking drugs.

OSTEITIS DEFORMANS

To the Editor:—Please give the course of treatment for Paget's disease (osteitis deformans) in a 53 year old man? Is testosterone of any value?

William Kershaw, M.D., Queens Village, L. I., N. Y.

ANSWER.—The etiology of Paget's disease is unknown, and there is no known effective treatment. If, as in some cases, there is pain associated with the condition, roentgen therapy may be of palliative value. Salicylates may help in the same manner. There is no proof that testosterone is of value. There are no published reports of adequately controlled series of patients treated with this hormone.

NOCTURNAL CRAMPS AND VOMITING OF PREGNANCY

To the Editor:—In the answer to the question on "Nocturnal Cramps and Vomiting of Pregnancy" in the July 8 issue, I wish to bring the following observations to your attention: The incidence of nocturnal leg cramps among our obstetric patients has been severe enough to warrant careful study as to the etiology. Our observations do not substantiate low calcium intake as being of etiological importance. Our patients are routinely maintained on supplemental calcium gluconate; yet 10 per cent complain of nocturnal leg cramps. Eliminating those patients with obvious varicose veins, we have been unable to establish any definite cause for this bothersome complaint. Our patients have experienced satisfactory and rapid relief from nightly administration of 50 mg. of diphenhydramine (benadryl®) hydrochloride. With this regimen, all symptoms usually vanish within five days. Recurrences are treated with spasmodic doses of diphenhydramine hydrochloride as indicated.

William G. Caldwell, Toluca Lake, Burbank, Calif.

To the Editor:—Several times in the past few years I have noticed questions regarding nocturnal leg cramps in Queries and Minor Notes. I have not seen, however, mention made of the most effective treatment for this condition, which consists of 5 grains (0.30 Gm.) of quinine sulfate at bedtime. This dose should be continued for five to seven days, after which in a majority of cases the condition will be relieved. Should it recur later, the medication should be repeated. The mechanism by which quinine helps probably has to do with its effect on muscle irritability. The cramps themselves are most likely to occur after excessive exercise, excessive perspiration with ingestion of large quantities of water or severe vomiting or diarrhea. They apparently are closely allied with chloride metabolism. I cannot give you the original source of this use of quinine. It was put in the literature several years ago by Dr. Foster Kennedy of New York. It had been noted as a by-product during the course of an inquiry into the treatment of spastic paralysis.

Robert J. Needles, M.D., St. Petersburg, Fla.

The above comments were referred to the consultant who answered the original inquiry. His additional comment follows. —ED.

I did not attempt to go into all the causes of leg cramps in my reply. I made no suggestion that it was due to low calcium intake but merely local calcium deficiency, that is, in the muscle. Another point is that, in spite of a deficient intake of calcium, the blood calcium levels usually remain normal. I have not used diphenhydramine hydrochloride in this condition, but I repeat that adding 30 drops of oleum percomorphum (natural) daily will almost without exception stop the leg cramps in about three to five days. If one reviews muscle physiology, it appears that these cramps are in some way related to carbon dioxide, lactic acid and local calcium metabolism. Track men frequently experience these cramps when overextending themselves.

ANXIETY OR CHOREA

To the Editor:—With reference to the query entitled "Anxiety or Chorea" in *The Journal* of August 12 (page 1380), I should like to call attention to the work done by my associates and me, which suggests that a large percentage of the cases of Sydenham's chorea are not related to rheumatic fever (Kagan, B. M., and Mirman, B.: Sydenham's Chorea: A Syndrome for Differential Diagnosis, *J. Pediat.* 31:322 [Sept.] 1947. Kagan, B. M.; Rosner, D., and Rosenblum, P.: Chorea [Sydenham's]: A Study of 58 Additional Cases, *Am. J. Dis. Child.* 78:306 [Sept.] 1949).

The fact that physical, roentgen and laboratory examinations disclosed no abnormalities except for evidences of incoordination, nervousness, grimacing and twitching does not exclude a diagnosis of Sydenham's chorea. If this was the first episode of chorea in this child and if the results of all the examinations are negative as reported and the erythrocyte sedimentation rate was determined within the first three weeks of the onset of the initial episode, it would appear most unlikely that this child has rheumatic fever. However, there is nothing at this time to help rule out a diagnosis of Sydenham's chorea. The association of a state of anxiety with Sydenham's chorea and the absence of any evidence of rheumatic fever, either during the episode or subsequently, are common.

B. M. Kagan, M.D., Chicago.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 144, No 15 — Chicago, Illinois — December 9, 1950

Copyright, 1950, by American Medical Association

EVALUATION OF SYMPATHECTOMY IN ARTERIOSCLEROTIC PERIPHERAL VASCULAR DISEASE

Chairman's Address

MICHAEL E DeBAKEY, M D
OSCAR CREECH, M D
Houston, Texas
and
JEROME P WOODHALL M D
New Orleans

In terms of incidence and morbidity arteriosclerosis constitutes the most important form of peripheral vascular disease and consequently deserves the most serious consideration However, until relatively recently the prevailing attitude characterizing the therapeutic approach to this problem was almost fatalistic Among the more important factors which have contributed to this point of view are the concept that arteriosclerosis is an inevitable consequence of aging and therefore an irreversible process, and the general belief that sympathectomy was indicated only in peripheral vascular disturbances characterized by vasospastic phenomena with little or no organic component With the encouraging results which followed the cautious extension of this procedure in selected cases of this disease greater interest was aroused in the potential benefits of this form of therapy During the past decade numerous reports have appeared attesting to the value of this procedure in obliterative vascular sclerosis and reflecting a more hopeful outlook in therapy [1]

ANALYSIS OF DATA

This report is concerned with an evaluation of our experience with this problem based on an analysis of 146 consecutive cases of arteriosclerotic peripheral vascular disease of the lower extremities treated by lumbar sympathectomy at the Charity Hospital in New Orleans The procedure was performed bilaterally in 55 cases, so that in the entire series there was a total of 201 sympathectomies The operation was generally performed through an anterolateral, extraperitoneal, muscle-splitting approach as previously described,[2] with removal of all the lumbar sympathetic ganglions and chain overlying the second to the fourth lumbar vertebrae Prior to sympathectomy all patients had been treated by the usual conservative measures with little or no success All patients were followed six months or longer; 75 per cent were followed more than one year, and 38 per cent from two to four or more years Although oscillometric plethysmographic and thermometric studies were done in a number of cases, in most instances the generally accepted clinical criteria were employed in the diagnosis and classification of the cases Because the presence of diabetes has been generally considered to contribute further to the seriousness of the problem and the difficulties of management, the patients were divided accordingly into diabetic and nondiabetic groups for purposes of comparison

Age—The age distribution was about the same for the diabetic and nondiabetic groups of patients (fig 1) Almost 90 per cent of the patients fell into the sixth, seventh and eighth decades The youngest and oldest patients were 40 and 82 years of age, respectively, and the average age was 60 years

Sex—Arteriosclerosis uncomplicated by diabetes is predominantly a disease of males, but in the presence of diabetes this difference in sex incidence is much less pronounced Thus, in our series the ratio of males to females among the nondiabetic patients was about 5 to 1, whereas among those with diabetes it was almost 1 to 2 (fig 2) This variation in sex incidence of diabetic and nondiabetic patients is probably a reflection of the general observation that diabetes is more frequently encountered in females and arteriosclerosis occurs far oftener in diabetic than in nondiabetic patients [3]

From the Department of Surgery, Baylor University College of Medicine Houston, Texas (Drs DeBakey and Creech)

From the Charity Hospital of Louisiana and the Department of Surgery, Tulane University School of Medicine New Orleans (Dr Woodhall)

Read before the Section on Surgery, General and Abdominal at the Ninety Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950

[1] (*a*) Harris, R I The Role of Sympathectomy in the Treatment of Peripheral Vascular Disease, Brit J Surg **23.** 414 424 (Oct) 1935 Leriche, R, and Fontaine, R Einige Bemerkungen uber 1,199 Operationen am Sympathicus, Arch f klin Chir **186:** 338 350, 1936 Mayer, C La therapeutique chirurgicale des obliterations arterielles organiques des membres inferieurs Bruxelles med **16:** 1090 1098 (May 17) 1936 Pearl, [illegible] on With a Report of 6 Cases, Am J M Sc [illegible] Ochsner, A, and DeBakey, M The Rational [illegible] Vascular Disease Based on Physiologic Principles, J A M A **112:** 230 236 (Jan 21) 1939 Atlas, L M Lumbar Sympathectomy in the Treatment of Selected Cases of Peripheral Arteriosclerotic Disease, Am Heart J **22:** 75 85 (July) 1941 Freeman, N E, and Montgomery, M Lumbar Sympathectomy in the Treatment of Intermittent Claudication Selection of Cases by Claudication Test with Lumbar Paravertebral Procaine Injection, ibid **23:** 224 242 (Feb) 1942 Shumacker, H B, Jr Sympathectomy in Treatment of Peripheral Vascular Disease, Surgery **13:** 1 26 (Jan) 1943 Ives, H R Lumbar Procaine Block and Sympathectomy in Arteriosclerotic Endarteritis, Proc Roy Soc Med **36:** 339 340 (May) 1943 Trimble, I R, Cheney, W S, and Moses, W R The Operative Attack on Organic Vascular Disease, Surgery **13:** 655 678 (April) 1944 Barringer F S The Results of Lumbar Sympathectomy for Arteriosclerosis of the Lower Limbs Queen s M Quart **39:** 34 35, 1946 (*b*) de Takats, G, Fowler, E F Jordan P, and Risley, T C Sympathectomy in the Treatment of Peripheral Vascular Sclerosis, J A M A **131** 495 499 (June 8) 1946 de Takats, G, and Evoy, M H Sympathectomy for Peripheral Vascular Sclerosis, ibid **133** 441 444 (Feb 15) 1947 (*c*) Gautier, R Les resultats eloignes de la therapeutique chirurgicale dans les arterites obliterantes des membres (D apres 274 observations), Lyon, Imprimerie des Beaux Arts, 1946 Telford, E D, and Simmons H T Sympathectomy in Peripheral Arteriosclerosis, Brit M J **1.** 386 387 (March 16) 1946 Yeager, G H and Cowley, R A Anatomical Observations on the Lumbar Sympathetics with Evaluation of Sympathectomies in Organic Peripheral Vascular Disease, Ann Surg **127.** 953 967 (May) 1948 Coller, F A, Campbell K N, Harris B M, and Berry, R E L The Early Results of Sympathectomy in Far Advanced Arteriosclerotic Peripheral Vascular Disease Surgery **26:** 30 40 (July) 1949 (*d*) DeBakey, M, and Ochsner, A Critical Evaluation of Sympathectomy in Peripheral Vascular Disease Wisconsin M J **48:** 689 698 (Aug) 1949 (*e*) Jemerin E E Sympathectomy in Peripheral Arteriosclerosis, Ann Surg **129.** 65 73 (Jan) 1949

[2] Ochsner, A, and DeBakey, M Peripheral Vascular Disease Critical Survey of Its Conservative and Radical Treatment, Surg, Gynec & Obst **70:** 1058 1072 (June) 1940

[3] Dry, T J, and Hines, E A, Jr The Role of Diabetes in the Development of Degenerative Vascular Disease With Special Reference to the Incidence of Retinitis and Peripheral Neuritis, Ann Int Med **14** 1893 1902 (April) 1941

Race.—No significant racial factor was observed in our series, as far as the white and Negro races are concerned, since their incidence approximated those of the population for the two races in the hospital (fig. 3).

Duration of Symptoms.—Analysis of the duration of symptoms revealed several interesting observations, some of which were unexpected. For one thing, among both the diabetic and nondiabetic groups symptoms existed for a significantly longer period of time among the unamputated than among the amputated patients (fig. 4). For another, the duration of symptoms was much shorter for the diabetic than for the nondiabetic groups. The former observation was somewhat unexpected. Arteriosclerosis is generally considered a chronic, progressive, degenerative process which, as a consequence of occlusion of the arterial lumens, leads ultimately to ischemic necrosis of the part supplied by these vessels. It might be reasonably expected, then, that patients requiring amputation would represent the end result of long-standing disease, but in our series, at least, this has not been true. Eighty-five per cent of the patients requiring ablation had frank gangrene when first seen; yet the duration of symptoms was shortest in this group. This would suggest that there exists a more rapidly progressive form of the disease which is highly resistant to therapy.

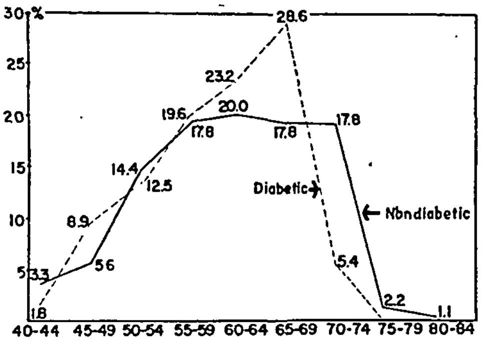


Fig. 1.—Age distribution of diabetic and nondiabetic patients. The average age for the diabetic was 60.0 and for the nondiabetic 61.5 years.

There is a striking difference in the duration of symptoms between the diabetic and nondiabetic groups of patients. The shorter period for the former group may be accounted for by several factors. The presence of diabetes would seem to hasten, and in a sense to telescope, the development of manifestations of arterial insufficiency and thus to cause the patient to seek medical attention earlier than he might otherwise. Perhaps the propensity of the diabetic patient for cutaneous infections is also a significant factor in this connection. Furthermore, there is a tendency for the diabetic patient to be more closely supervised, so that the likelihood of his receiving medical attention at the first sign of vascular impairment or infection is greater.

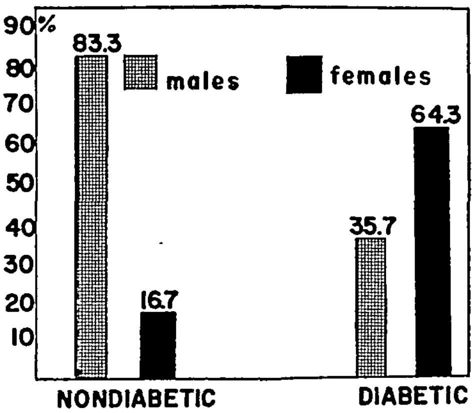


Fig. 2.—Incidence of lumbar sympathectomy by sex of patients.

Results of Therapy.—For purposes of simplicity and convenience of analysis the cases were divided into three categories, (1) no gangrene, (2) impending gangrene and (3) frank gangrene. The first group consisted of patients whose arterial deficiency was manifested by pain, either in the form of intermittent claudication or ischemic neuritis, but without evidence of alterations in the skin. Although the majority of these patients had pronounced restriction in walking distance and absence of peripheral pulses, they represent the least severe form of the disease and correspond closely to grade 1 of the classification proposed by de Takats and associates.[1b] The second group, impending gangrene, was comprised of patients who had, in addition to the manifestations previously noted, definite cutaneous changes including particularly pronounced discoloration, atrophy, glossy edema and other evidences of capillary stasis and severe arterial deficiency. The criteria for determining the selection of patients for the category of frank gangrene were obvious except for those with diabetes. In this group every effort was made to distinguish a primarily infectious from a gangrenous process.

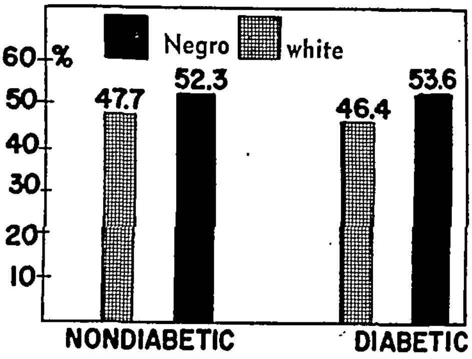


Fig. 3.—Incidence of lumbar sympathectomy by race of patients.

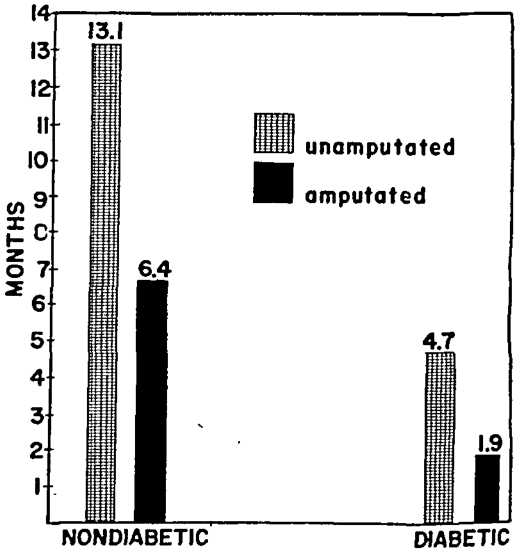


Fig. 4.—Average duration of symptoms in patients undergoing lumbar sympathectomy.

Again for the sake of simplicity and ease of analysis, results of therapy were classified into three categories, (1) improved, (2) unimproved and (3) amputated. Although in some instances certain special studies, such as oscillometric, thermometric and plethysmographic observations, were employed in assessing the results, in the majority of cases this was done on the basis of definite clinical evidence including relief of symptoms, increased walking distance, ability to return to work, improvement in color, texture and temperature of the skin, and salvage of an extremity in which impending or frankly gangrenous changes were present prior to operation. By amputated is meant a major amputation, i. e., above the ankle. If there was any doubt about the result, the case was classified as unimproved. For example, in a few instances even of frank gangrene in which amputation was not required after the sympathectomy the result was classified as unimproved because, despite salvage of the extremity, there persisted other severe manifestations that were more or less incapacitating. Furthermore, in order to provide a more critical evaluation of therapy, the results were assessed at the end of the follow-up period rather than immediately after discharge of the patient from the hospital following sympathectomy. In some instances apparent improvement occurred for a varying period of time after operation but ultimately, for example, at the end of six months or a year, the patient returned with ischemic necrosis necessitating amputation. Such a case was classified as amputated. It is, of course, recognized that by the rigid adherence to these criteria in assessing the results of therapy certain benefits of treatment, such as temporary salvage or prolongation of a viable extremity, better control of an infectious process and the ability to provide a low rather than a high amputation, are excluded from the final results of therapy. However, experience has emphasized the need for a rigidly objective and critical attitude in the assessment of results of treatment in peripheral vascular disease if accurate evaluation is to be achieved.

The best results were, of course, obtained in patients with the least severe disease, i. e., those in the "no gangrene" category in both the nondiabetic and diabetic groups (table 1). Even among the patients with impending gangrene a gratifying incidence of improvement was achieved in more than three fourths of the cases. It may also be observed that among the patients with frank gangrene it was possible to secure a viable, useful extremity in almost a fourth of the group without diabetes and in almost half of those with diabetes. The strikingly better results obtained among the diabetic patients in this category suggest that the distinction between a truly infectious and an actually gangrenous process may not always have been accurately made. These results also suggest that the severity of ischemic manifestations in the diabetic patient may not accurately reflect the degree of the occlusive process in the vascular bed. The presence of diabetes may tend simply to accentuate the manifestations of ischemia. In other words, although the patient with diabetes may have clinical manifestations equally severe and comparable to those of another without diabetes, the underlying occlusive vascular process may be less severe in the former than in the latter. This hypothesis gains some support from the previously observed differences in the duration of symptoms for the two groups of patients. In any case the diabetic patient certainly has an equally good chance of obtaining benefit from this form of treatment as the nondiabetic, for a comparison of the results in these two groups in our entire series reveals no essential difference (table 2). Definite improvement was obtained in almost two thirds of the cases, and only about a fourth of the patients in each group required amputation. A viable, useful extremity was secured in 78.5 per cent of the 28 patients with impending gangrene and in 35 per cent of the 83 patients with frank gangrene. Transmetatarsal amputation, as described by McKittrick and co-workers,[4] was done in eight patients with salvage of the extremity in three. There were no operative deaths in the entire series.

Table 1.—*Results of Sympathectomy in Nondiabetic and in Diabetic Group*

	Nondiabetic				Diabetic			
Classification	No	Improved	Unimproved	Amputated	No	Improved	Unimproved	Amputated
No gangrene	63	53 (84.1%)	8 (12.7%)	2 (3.2%)	27	24 (88.9%)	2 (7.4%)	1 (7%)
Impending gangrene	19	15 (78.9%)	0	4 (21.1%)	9	7 (77.8%)	1 (11.1%)	1 (11.1%)
Frank gangrene	42	10 (23.8%)	4 (9.5%)	28 (66.7%)	41	19 (46.3%)	5 (12.2%)	17 (41.5%)
Total	124	78 (62.9%)	12 (9.7%)	34 (27.4%)	77	50 (64.9%)	8 (10.4%)	19 (24.7%)

Table 2.—*Total Results of Sympathectomies in Diabetic and Nondiabetic Groups*

Classification	No. of Sympathectomies	Improved	Unimproved	Amputated
Nondiabetic	124	78 (62.9%)	12 (9.7%)	34 (27.4%)
Diabetic	77	50 (64.9%)	8 (10.4%)	19 (24.7%)
Total	201	128 (63.7%)	20 (9.9%)	53 (26.4%)

COMMENT

In general, the results obtained in this series of cases are similar to those reported by others. Although no controls are available for purposes of comparison, it seems reasonable, on the basis of this experience and the determined effort to provide a critical evaluation of the results of therapy, to make certain observations and to draw certain conclusions concerning the value as well as the limitations of sympathectomy in arteriosclerotic peripheral vascular disease. Certainly all our previous experience, as well as that of others, has indicated that amputation is almost invariably required in impending as well as frank gangrene and that deaths were by no means unusual. Indeed, 10 to 12 years ago the mortality rate after amputations ranged from approximately 15 to 30 per cent.[5]

Much more impressive results probably could have been obtained had we continued to employ sympathectomy as we employed it originally, that is, in carefully selected cases. With increasing experience, however, the indications for operation were broadened. It was found that even after frank gangrene had developed sufficient improvement in circulation might be achieved to secure arrest of the process with complete healing and minimal loss of tissue and that if amputation should be necessary, a functioning extremity might be preserved because of use of a less radical operation.

Age.—Age is no longer considered a contraindication to sympathectomy. Almost 60 per cent of our patients were 60 years of age or over, and 15 per cent were more than 70 years of age. Sympathectomy, however, is perhaps less frequently indicated in the elderly because they are more liable to have other more disabling disturbances. In those patients already incapacitated by cardiac or other disorders the relief from peripheral vascular symptoms which might follow sympathectomy would be insignificant unless there were pressing indications for surgical therapy, such as constant intractable pain, progressive infection or gangrene.

Bilateral Operation Preferable.—Although symptoms usually appear first on one side, the arteriosclerotic process generally involves the vessels of both lower extremities. For this reason and because an additional burden may be subsequently placed on the apparently symptomless extremity, we have come to believe that the operation should be done bilaterally unless there is some definite contraindication. The operating time is not prolonged significantly, and the additional risk of a subsequent anesthetic and operation is avoided. In the patients treated in this manner and followed for long periods it has been gratifying to observe the paucity of symptoms in the prophylactically treated extremity.

---

[4] McKittrick, L. S.; McKittrick, J. B., and Risley, T. S.: Transmetatarsal Amputation for Infection or Gangrene in Patients with Diabetes Mellitus, Ann. Surg. **130:** 826-840 (Oct.) 1949.

[5] (*a*) Veal, J. R.: Factors in the Mortality Rate of Arteriosclerotic Gangrene: Comparative Study of 214 Cases of Surgical Intervention, J. A. M. A. **110:** 785-789 (March 12) 1938. Faxon, H. H.: Major Amputation for Advanced Peripheral Arterial Obliterative Disease, ibid. **113:** 1199-1203 (Sept. 23) 1939. (*b*) McKittrick, L. S.: Diagnosis and Management of Chronic Obliterative Vascular Disease, ibid. **113:** 1223-1227 (Sept. 23) 1939. (*c*) de Takats, G., and Reynolds, J. T.: Amputation for Peripheral Vascular Disease, Arch. Surg. **40:** 253-270 (Feb.) 1940. Hines, E. A., Jr., and Barker, N. W.: Arteriosclerosis Obliterans: A Clinical and Pathologic Study, Am. J. M. Sc. **200:** 717-730 (Dec.) 1940. Macey, H. B., and Bickel, W. H.: Amputation of the Lower Extremities in Occlusive Arterial Diseases, Surg., Gynec. & Obst. **74:** 821-827 (April) 1942. Campbell, K. N., and Harris, B., quoted by Blain, A., III, and Campbell, K. N.: Lumbar Sympathectomy for Arteriosclerosis Obliterans: Rationale and Results, Surgery **25:** 950-962 (June) 1949.

Good Results in Diabetics.—The high incidence of good results and the definite improvement in circulation which has followed sympathectomy in the diabetic patients would suggest that it is a particularly useful procedure in these circumstances. McKittrick [5b] among others has emphasized the value of prompt attention to infections of the feet and the careful performance of minor amputations in the management of these patients. Our experience leads us to believe that in many of these patients with localized infections of gangrenous processes sympathectomy provides sufficient improvement in the circulation to permit greater ease in control of infection and rapid arrest of the ischemic process with complete healing and minimal loss of tissue. It would also appear to reduce the incidence of subsequent major amputation.

Sympathetic Block.—In our early experience with sympathectomy a good deal of reliance was placed on the use of sympathetic block as a preliminary procedure to test the value of sympathectomy, but with increasing experience we soon realized, as did others, that this is not an entirely dependable test in this type of peripheral vascular disease. Vasospasm is not always a prominent factor in degenerative arterial disease, and the maximum effects of interruption of the sympathetic pathways for the production of vasodilatation require a much longer period than can be secured by temporary sympathetic block. Numerous patients have been observed in whom little or no immediate vasodilatation followed the block but in whom sympathectomy was followed by gradually increasing improvement in the circulation which reflected slowly developing vasodilatation and collateral circulation. Perhaps the one group of patients in whom the test may be useful in determining the value of sympathectomy is that with severe, intractable pain or ischemic neuritis. In these circumstances if a properly performed block provides no relief of pain it is doubtful that the sympathectomy will be any more effective.

Gangrene.—Several observers [6] have directed attention to the occasional occurrence of gangrene after sympathectomy in patients with advanced occlusive arteriosclerosis. This has been explained on the basis of Popoff's [7] suggestion that arterial blood may be shunted from the capillary system directly into the veins through the opening up, as a consequence of sympathectomy, of the arteriovenous anastomoses described by Sucquet [8] and Hoyer.[9] On this basis and their experience with four cases of gangrene following sympathectomy, Freeman, Leeds and Gardner [6b] have expressed the belief that sympathectomy may be contraindicated in cases of severe obliterative vascular disease with low vasomotor tone or without evidence of abnormal vasoconstriction. These observers recognized, however, that this concept was still hypothetic and without adequate proof. As pointed out by Smithwick,[10] a study of these cases suggests that recent acute vascular occlusion had occurred and inadequate collateral circulation was present at the time of operation. Moreover, serious objections to this concept lie in the fact that the occurrence of gangrene following sympathectomy in cases of advanced obliterative arterial disease is relatively uncommon and in the fact that most of these patients have low vasomotor tone but often show slow but progressive improvement in circulation after sympathectomy. In our experience frank gangrene developed rather rapidly after sympathectomy in only one patient with impending gangrene. In this case, however, the history and short duration of symptoms suggested the occurrence of acute vascular occlusion with progressive thrombosis and inadequate collateral circulation. The operation, but not necessarily the sympathectomy per se, may have been an additional factor in furthering the occlusive and ischemic process.

Theoretical Objections to Sympathectomy.—In this connection it is pertinent to consider the theoretical objections to sympathectomy advanced from time to time and consisting in the belief, derived from certain experimental observations, that the resultant vasodilatation takes place in the skin and not in the muscle, and consequently that blood may be diverted from the muscles to the skin. As emphasized by Learmonth,[11] this hypothesis does not withstand investigation. For one thing, results of studies in man to determine blood flow in muscle and skin in these circumstances have been contradictory and inconclusive.[12] For another, this hypothesis does not conform to clinical experience. Intermittent claudication is not worsened by sympathectomy; it is usually benefited. Finally, it should be realized that the major threat in patients with arteriosclerotic peripheral vascular disease stems primarily from a deficiency in the cutaneous circulation. Impending or actual gangrene occurs first in the skin, not in the muscle. This is the major cause for amputation, not intermittent claudication. It is therefore apparent that in these circumstances improvement in blood flow through the skin assumes major importance, a fact which enhances rather than depreciates the value of sympathectomy.

Contraindications.—On the basis of this experience we believe that sympathectomy is the method of choice in the treatment of arteriosclerotic peripheral vascular disease unless definite contraindications to operation

---

6. (*a*) Atlas, L. N.: Lumbar Sympathectomy in the Treatment of Peripheral Arteriosclerotic Disease, Am. Heart J. **23**: 493-497 (April) 1942. (*b*) Freeman, N. E.; Leeds, F. H., and Gardner, R. E.: Sympathectomy for Obliterative Arterial Disease: Indications and Contraindications, Ann. Surg. **126**: 873-894 (Dec.) 1947.

7. Popoff, N. W.: The Digital Vascular System, Arch. Path. **18**: 295-330 (Sept.) 1934.

8. Sucquet, J.-P.: Anatomie et physiologie: Circulation du sang; D'une circulation dérivative dans les membres et dans la tête chez l'homme, Paris, A. Delahaye, 1862.

9. Hoyer, H.: Über unmittelbare Einmündung kleinster Arterien in Gefässaste venösen Charakters, Arch. f. mikr. Anat. **13**: 603, 1877.

10. Smithwick, R. H.: Surgery of the Autonomic Nervous System, New England J. Med. **240**: 543-551 (April 7) 1949.

11. Learmonth, J.: Collateral Circulation: Natural and Artificial, Surg., Gynec. & Obst. **90**: 385-392 (April) 1950.

12. (*a*) Barcroft, H.; Bonnar, W. M.; Edholm, O. G., and Effron, A. S.: On Sympathetic Vasoconstrictor Tone in Human Skeletal Muscle, J. Physiol. **102**: 21-31 (June 30) 1943. Cohen, S. M.: Traumatic Arterial Spasm, Lancet **1**: 1-6 (Jan. 1) 1944. Siddons, A. H. M.: Sympathetic Block in Vascular Injuries: Review, ibid. **2**: 77 (July 21) 1945. Barcroft, H., and Edholm, O. G.: Sympathetic Control of Blood-Vessels of Human Skeletal Muscle, ibid. **2**: 513-515 (Oct. 12) 1946. Stein, I. D.; Harpuder, K., and Byer, J.: Reactivity of Blood Vessels in the Sympathectomized Human Leg, Am. J. Physiol. **158**: 319-325 (Aug. 1) 1949. (*b*) Stone, P. W., and Cooper, F. W., Jr.: Treatment of Experimental Acute Arterial Insufficiency: A Comparison of the Sympatholytic Agent Priscoline (2-Benzyl-4,5-Imidazoline Hcl) and Sympathectomy, Surgery **27**: 572-583 (April) 1950. (*c*) Murphy, R. A., Jr.; McClure, J. N.; Cooper, F. W., Jr., and Crowley, L. G.: The Effect of Priscoline, Papaverine and Nicotinic Acid on Blood Flow in the Lower Extremity of Man: A Comparative Study, ibid. **27**: 655-663 (May) 1950.

exist. These include particularly severe cerebral, cardiac, renal or pulmonary involvement, a far advanced and rapidly progressive process, and pronounced atrophic changes in the limb. The presence of intractable pain or severe ischemic neuritis which cannot be relieved by sympathetic block should also be regarded as a contraindication. The most suitable subjects for sympathectomy are those with manifestations of the more slowly progressive forms of the disease with moderate degrees of involvement, but highly gratifying results may also be achieved even in patients with impending or actual gangrene, although not as frequently as in the former group.

Rationale and Value of Sympathectomy.—Finally, we believe that these observations provide additional support of the rationale and value of sympathectomy in arteriosclerotic peripheral vascular disease. As emphasized previously in a consideration of the rationale of sympathectomy in peripheral vascular disease, it must be regarded not as a direct attack on the cause of the disturbances but rather as a means of correcting or [illegible] the effects of the disease, which take the [illegible] in the circulation of the part.[1d] It is based on sound physiologic principles consisting essentially in the release of constrictor tonus, which may or may not be excessive, depending on the type and stage of the disease. By this means it permits maintenance of the maximum degree of vasodilatation in the denervated area, thus producing an increase in the volume of the local vascular bed and consequent improvement in the local circulation. In this respect the objective of the procedure conforms to the concept of hemodynamics to which the term hemometakinesia[1] has been applied and thus provides a further rational basis for sympathectomy. This concept is derived from certain observations concerning the physiologic features of the circulation which establish the presence of spontaneous and even rhythmic fluctuations in the volume of organs primarily attributable to changes in the volume of blood within the part These fluctuations of the blood volume in different parts of the body can occur without any alterations in the total blood volume or cardiac output by an adjustment of the vascular bed, which permits simultaneously an increase in the volume of blood (through vasodilatation) of one part of the body and a corresponding decrease (through vasoconstriction) elsewhere. This compensatory process, permitting the "borrowing and lending" of blood by various tissues to meet variations in requirements, is indicative of a well regulated mechanism designed to permit the body to utilize its limited total blood volume in the most efficient manner. The sympathetic nervous system plays an important role in this mechanism of control and regulation of the peripheral vascular bed. Interruption of the sympathetic pathways to the part removes the vasoconstrictor factor in this mechanism, resulting in maximum vasodilatation in the vascular bed of the affected part. Other means of producing such vasodilatation by the use of vasodilator agents administered systemically have long been attempted with little success. These agents for the most part produce transitory and varying degrees of generalized vasodilatation. In most peripheral vascular disturbances, however, the impairment in circulation is usually localized to one or two peripheral parts. Accordingly, the therapeutic effort should rationally be directed not toward the production of vasodilatation of the entire vascular bed but rather toward the production of local vasodilatation limited to the part in need of more blood. These are not alone theoretical considerations; they are supported by both clinical and experimental observations. Although some observers have reported favorable results following the use of certain generalized vasodilator agents, we have not been able to confirm these observations.[14] Indeed, our studies on peripheral blood flow conducted under controlled atmospheric conditions revealed that none of these vasodilator agents could consistently produce in a local peripheral part vasodilatation equal in degree and duration to that produced by sympathetic denervation of the part.[14] More recent reports have confirmed these observations.[15]

SUMMARY

1. An evaluation of the results of lumbar sympathectomy in the treatment of arteriosclerotic peripheral vascular disease is presented on the basis of 146 consecutive patients, 55 of whom had bilateral involvement. All patients were followed at least six months, three fourths of the patients more than one year and 38 per cent from two to four or more years. Results of therapy were evaluated at the end of the follow-up period.

2. The cases were divided into three categories, (1) no gangrene, (2) impending gangrene and (3) frank gangrene, according to the severity of involvement They were further subdivided into those with and without diabetes.

3. The best results were obtained in patients with the least severe disease, over 85 per cent showing definite improvement. A gratifying incidence of improvement was also achieved among more than three fourths of the patients with impending gangrene. Even among the patients with frank gangrene definite improvement with salvage of the extremity was secured in 35 per cent of cases. A comparison of the results among the diabetic and nondiabetic groups revealed no essential difference except in the category of frank gangrene, in which a somewhat higher incidence of improvement was observed among the diabetic patients. There were no operative deaths in the entire series.

4. Sympathetic block as a preliminary procedure to test the value of sympathectomy is not an entirely dependable test, except perhaps in patients with severe intractable pain or ischemic neuritis.

5. Sympathectomy is considered the method of choice in the treatment of arteriosclerotic peripheral vascular disease unless there exist definite contraindications to operation, such as severe cardiac, cerebral, renal or pulmonary involvement, a far advanced and rapidly progressive process, and pronounced atrophic changes in the extremity.

---

[13] Ray, T; Burch, G E, and DeBakey, M The "Borrowing Lending" Hemodynamic Phenomenon (Hemometakinesia) and Its Therapeutic Application in Peripheral Vascular Disturbances, New Orleans M. & S. J **100:** 615 (July) 1947. DeBakey, M E; Burch, G, Ray, T, and Ochsner, A The "Borrowing Lending" Hemodynamic Phenomenon (Hemometakinesia) and Its Therapeutic Application in Peripheral Vascular Disturbances, Ann Surg **126:** 850 865 (Dec) 1947

[14] DeBakey, M E, in discussion on Coller, F A, and others Tetraethyl Ammonium as Adjunct in Treatment of Peripheral Vascular Disease and Other Painful States, Ann. Surg **125:** 729 755 (June) 1947. Footnote 13.

[15] Pearl, F. L.: Tetraethyl Ammonium Chloride. Its Effects on Surface Temperatures of Arteriosclerotic Extremities, Ann Surg **128:** 1100 1111 (Dec) 1948; Tetraethyl Ammonium Chloride Its Effects on Surface Temperatures of Extremities in Peripheral Vascular Conditions, ibid. **128:** 1092 1099 (Dec) 1948 Martin, W B; Laufman, H., and Tuell, S. W Rationale of Therapy in Acute Vascular Occlusions Based upon Micrometric Observations, ibid **129:** 476 493 (April) 1949. Smithwick[10] Stone and Cooper[17b] Murphy, McClure, Cooper and Crowley.[12c]

SHAKESPEARE'S KNOWLEDGE OF CHEST DISEASES

Chairman's Address

WALTER E. VEST, M.D.
Huntington, W. Va.

One of the most zealous students of the Bard of Avon, Mary Cowden Clarke, says that the brightest ornament of the British nation is the genius of Shakespeare. Probably everyone will admit that he was one of the greatest geniuses the Anglo-Saxon race has ever produced, if not the greatest. His grasp of the details of all phases of knowledge and of life is astounding. As far as is known he never studied medicine, but his comprehension of medicine and disease compares favorably with that of his physician contemporaries, who were none too well versed in scientific medicine themselves. The poet's medical knowledge must be viewed, however, in the light of the actual medical knowledge and practice prevalent among the physicians of his day. Licensure had just been introduced, and medicine was indeed embryonic. Harvey first mentioned to his students his ideas of the circulation during the week of Shakespeare's death and published the details of his immortal discovery 12 years later.

Probably the knowledge of chest diseases was less advanced around the beginning of the seventeenth century than was medicine generally. Certainly Shakespeare's references to chest conditions are fewer than to almost any other group of diseases. He does, however, make many references which are of interest to chest specialists.

The lungs are referred to 19 times in the plays and twice in "A Lover's Complaint." In addition to mention of the respiratory function of the lungs, there are five instances that relate them to mirth and laughter. For instance, when Alonzo upbraids Gonzalo for describing his impossible utopia, the latter replies, "I . . . did it to minister occasion to these gentlemen, who are of such sensible and nimble lungs that they always use to laugh at nothing" (Tempest, II, i). And Armado says, "The heaving of my lungs provokes me to ridiculous smiling." (Love's Labor's Lost, IV, i). Also, the melancholy Jaques, after reciting the fool's comments on the dial and the aging process, says:

> When I did hear
> The motley fool thus moral on the time,
> My lungs began to crow like chanticleer,
> That fools should be so deep-contemplative,
> And I did laugh sans intermission
> An hour by his dial.
>
> *As You Like It,* II, vii.

Contrariwise, another reference suggests that sorrow and regret may be pulmonary in origin: "Hallowed with sighs that burning lungs did rise" (Lover's Complaint, line 228).

There are five references which imply that speech is in part a function of the lungs, as: "My lungs coin words" (Coriolanus, III, i), or, as when the host of the Garter Inn calls to Falstaff, "Bully Sir John! Speak from thy lungs" (Merry Wives of Windsor, IV, v).

Eight instances seem to refer to pulmonary physiology or, rather, pulmonary pathology, as: "Lungs and rotten ones" (Tempest, II, i), "Wheezing lungs" (Troilus and Cressida, V, i), "Infected lungs" (Pericles, IV, vi) and "That sad breath his spongy lungs bestow'd" (Lover's Complaint, line 326).

That the poet comprehended the possibility of pneumonia as a complication of measles is evident in:

> So shall my lungs
> Coin words till their decay against those measles
> Which we disdain should tetter us!
>
> *Coriolanus,* III, i.

The dyspnea incident to approaching death is evident when Henry IV on his deathbed says:

> My lungs are wasted so
> That strength of speech is utterly denied me.
>
> *2 Henry IV,* IV, v.

Shakespeare knew the condition we call asthma. We have already mentioned "wheezing lungs," which, from the context in this instance, he must have believed to be a symptom of syphilis. Also, he uses the term "tisick" when Pandarus says, "A whoreson tisick, a whoreson rascally tisick so troubles me . . . that I shall leave you one of these days" (Troilus and Cressida, V, iii).

Thomas Elyot, in the "Castelle of Helthe" (1534), uses "tisick" as synonymous with "shortnesse of breth." Onions defines it here as "a consumptive cough" and Schmidt as asthma or possibly "hectic." In the southern Appalachians, the laity still speak of asthma as "phthisic." Careful study of the context convinces me that Shakespeare actually meant asthma and that he probably believed it to be syphilitic in origin, for Pandarus goes on to say, "I have . . . such an ache in my bones that . . . I cannot tell what to think on't" (Troilus and Cressida, V, iii).

Cough is mentioned seven times, but in only two instances is it clear as a part of the symptom complex. In one it is a manifestation of the common cold, the contagiousness of which is also implied. When Falstaff is examining his recruits in Gloucestershire, this dialogue takes place:

> BULLCALF: I am a diseased man
> FALSTAFF: What disease hast thou?
> BULLCALF: A whoreson cold, sir, a cough, sir, which I caught . . . upon . . . coronation day.
>
> *2 Henry IV,* III, ii.

In the second instance, cough is represented as a part of the aging process. Ulysses, in "Troilus and Cressida" (I, iii), lists "to cough and spit" among "the faint defects of age."

Consumption is mentioned five times, and severity and wasting are always implied. Falstaff likens his pecuniary condition to consumption thus, "I can get no remedy against this consumption of the purse; borrowing only lingers and lingers it out, but the disease is incurable" (2 Henry IV, I, ii).

Once the word is used as synonymous with "plague" and as part of a curse: "Consumption catch thee!" (Timon of Athens, IV, iii). Here, spoken by Timon, the word may refer to syphilis, for earlier in the same scene he uses the plural "consumptions," unquestionably descriptive of late syphilis; and, incidentally, here is the first reference to the sunken nose of syphilis, as far as I can determine, in medical or any other type of literature. Lear, in his maniacal raving, names consumption as one of the attributes of "hell . . . the sulphurous pit" (King Lear, IV, vi). Consumption, in the modern sense of pulmonary tuberculosis, is used

---

Read before the Section on Diseases of the Chest at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

tauntingly by Beatrice to her sweetheart, Benedick, when she agrees to accept his suit and become his bride: "I yield upon great persuasion, and partly to save your life, for I was told you were in a consumption" (Much Ado About Nothing, V, iv). It would appear here that Shakespeare believed pulmonary tuberculosis curable, an idea decidedly advanced for medicine of that day.

While the word "spit" is used often in the plays, in only two instances does it have a medical implication. We have already mentioned that the characteristics of aging, as listed by Ulysses, include "to cough and spit," probably referring to the bronchiectatic aged. In the second instance, Falstaff says, "I would that I might never spit white again." The reference here is to the fact that physicians then regarded the color of the sputum as especially diagnostic of temperaments. Dark sputum was, according to Batman, "of melancholy," and "the white spettle not knottie, signifieth health." Some believed that white spittle was due to thirst, and Nares held that "to spit white" was a result of alcoholic intemperance. Falstaff's known inebriety, considered with the context, would lead us to the conclusion that Falstaff, at least, concurred in this opinion. "Hawking and spitting" is used in one instance, but as a manifestation of emotional embarrassment rather than with disease significance.

"Rheum" is used 15 times in the plays, most often in the sense of tears. When Shylock says to the would-be borrower Antonio, "you . . . spet upon my Jewish gaberdine" and "did void your rheum upon my beard," the word evidently means saliva. Once it is used in the sense of a nasal discharge, but in no instance does the poet use rheum in the modern medical sense of sputum.

"Plurisy" is used once, or, if we accept the opinion of Dyce, Lamb and Coleridge that Shakespeare actually was co-author with Fletcher of the "Two Noble Kinsmen," twice. In each instance the word is used in the sense of "plethora" rather than of an inflammation of the pleural membrane. In fact, "plurisy" was most commonly used in the former sense three centuries ago. More likely the condition we now know as pleurisy is meant when Prospero says:

> Tonight thou shalt have cramps,
> Side-stitches that shall pen thy breath up.
>
> *Tempest,* I, ii.

"Catching cold" in the sense of contracting an acute respiratory infection, or what we now call the common cold, is referred to 10 times. The idea, still prevalent among the laity, that to lie down without covering may usher in an acute cold, is seen in: "Yet here they shall not lie, for catching cold" (Two Gentlemen of Verona, I, ii).

We have already noted the idea of contagiousness of colds in the dialogue between Falstaff and the recruit, and weather as a causative factor is implied when the diminutive Grumio says, "Considering the weather, a taller man than I will take cold" (Taming of the Shrew, IV, i). Later in the same scene, after exposure to cold, he says, "I have caught extreme cold." Even the fool in "King Lear" implies that the weather is a causative agent when he says, "As the wind sits, thou'lt catch cold shortly" (King Lear, I, iv). The possible severity of the common cold is alluded to when Hotspur says, " 'Tis dangerous to take a cold" (1 Henry IV, ii). Knowledge of the sensation of nasal constriction and stuffiness and the disturbance of the sense of smell, as symptomatic of a head cold, is displayed when Hero calls attention to the "excellent perfume" of the gloves given her by the count:

> Beatrice: I am stuffed, cousin; I cannot smell.
> Margaret: . . . There's goodly catching of cold.
>
> *Much Ado About Nothing,* III, iv.

The high diaphragm in the corpulent person is alluded to when Prince Hal says to Falstaff, "This bosom of thine . . . is all filled up with guts and midriff" (1 Henry IV, III, iii). The term midriff was commonly used by the profession in middle and early modern English instead of diaphragm.

The grave illness of the King of France, whose recovery had been despaired of, was described by Shakespeare in "All's Well That Ends Well" as a fistula, a term then implying a discharging sinus anywhere in the body. From Boccaccio, the source of the plot, we know, however, that the actual condition was a draining chest sinus, a sequela of an empyema necessitatis. The King's condition had resisted all treatment given by the medical profession when Helena, the daughter of Gerard de Narbon, a "physician . . . much fam'd," offered to effect a cure by means of a secret prescription originated by her father. In those days surgeons were accustomed to keep their remedies secret, but physicians preferred to share their knowledge with their confrères. The King shows his knowledge of the medical ethics of his time and of the attitude of the profession in his reply to the girl's proffer of treatment:

> We thank you, maiden:
> But may not be so credulous of cure,
> When our most learned doctors leave us; and
> The congregated college have concluded
> That laboring art can never ransom nature
> From her inaidable estate; I say we must not
> So stain our judgment, or corrupt our hope,
> To prostitute our past-cure malady
> To empirics, or to dissever so,
> Our great self and our credit, to esteem
> A senseless help which help past sense, we deem.
>
> *All's Well That Ends Well,* II, i.

But Helena will not be refused. She argues and promises that if he is not cured within eight days she will forfeit her life "with vilest torture." Finally the King consents, saying:

> "Sweet practiser, thy physic I will try,
> That ministers thine own death if I die."
>
> *All's Well That Ends Well,* II, i.

Helena's prescription most miraculously cures him in two days, to the amazement of "the learned and authentic fellows," followers of both "Galen and Paracelsus . . . that gave him out incurable" and "not to be helped."

While tuberculosis of the cervical lymph nodes, or scrofula, is not, strictly speaking, a chest disease, it is of interest to chest specialists because its etiology makes it a part of the over-all problem of tuberculosis. Shakespeare knew the condition as "king's evil," so named because of the belief that its victims were cured after having had their lesions touched by the reigning sovereign. The disease is alluded to in only one play, "Macbeth," and this scene was probably introduced as a compliment to James I, who had recently come to the throne and had revived the custom of "touching," believing himself hereditarily endowed with the alleged miraculous powers of Edward the Confessor, the first to claim the "curative touch." James is said to have been especially proud of exercising the "touching power." Wilkes quotes Sir William Davenant (certainly the godson of Shakespeare and reputedly his illegitimate son) as saying that "in recognition of this fulsome compliment [in "Macbeth"], King James sent Shakespeare a letter of acknowledgment in his own handwriting."

While Malcolm and MacDuff are discussing the woes of Scotland and the misgovernment and crimes of Macbeth, a physician enters. Malcolm questions the man of medicine:

Comes the king forth, I pray you?
  Doctor: Ay, sir; there are a crew of wretched souls
That stay his cure. Their malady convinces
The great assay of art; but at his touch,
Such sanctity hath heaven given his hand,
They presently amend.
  Malcolm: I thank you, doctor.
  MacDuff: What's the disease he means?
  Malcolm: 'Tis called the evil;
A most miraculous work in this good king,
Which often, since my here-remain in England,
I have seen him do. How he solicits heaven,
Himself best knows; but strangely-visited people,
All swollen and ulcerous, pitiful to the eye,
The mere despair of surgery, he cures,
Hanging a golden stamp about their necks,
Put on with holy prayers; and 'tis spoken,
To t' [illegible] he leaves
The [illegible] With this strange virtue,
He hath a heavenly gift of prophecy,
And sundry blessings hang about his throne,
That speak him full of grace.

Macbeth, IV; iii.

The solicitation of heaven was evoked by the monarch in the "touching" ceremony, which was very solemn and impressive. The church dignitaries stood by. The king touched the diseased glands of the patient and solemnly intoned, "Rex tangit te; Deus sanat te, in nomine Patris et filii et spiritus sancti." The golden stamp alluded to by Shakespeare was here an anachronism, for the early kings gave only a penny as a neckpiece, but Henry VII in 1505 introduced the practice of giving a golden coin, called an angel, the value of which was 6s. 8d., or about a dollar at our present rate of exchange, although the purchasing power of money then was probably at least 25 times that of the present. It is a matter worthy of note that the angel was a coin in common circulation in the Elizabethan era and was the physician's usual fee for a consultation.

The superstition of the "royal touch" was well grounded in England. Pope Alexander III canonized Edward the Confessor and recognized his miraculous gift of healing. For years the "touching" service was a part of the Book of Common Prayer, but it was expunged in 1719.

I have discussed the medical references of interest to chest specialists as found in the work of Shakespeare and have endeavored to show that he understood medicine as it was known and practiced in his day and that in at least one instance, as to the curability of pulmonary tuberculosis, his thinking was well in advance of that of his physician contemporaries. He was not a physician in the strict sense of the term, but he knew and portrayed medicine in the way that he knew and portrayed all nature and all life—as its master. To quote Sir St. Clair Thomson, "His profound knowledge of human life and human nature . . . explains why he is, and must always be, one of our greatest masters of medicine."

REFLECTIONS ON THE CAUSATION OF DIABETES MELLITUS

The Frank Billings Lecture

RUSSELL M. WILDER, M.D., Ph.D.
Rochester, Minn.

My interest in diabetes began with a residency at the Presbyterian Hospital of Chicago, to which I was appointed by Dr. Billings. The Sprague Memorial Institute had been founded not long before at Dr. Billings' instigation and was supporting the research of Dr. Woodyatt. My days were divided equally between the hospital and Dr. Woodyatt's laboratory. As I recall that period, there was no uncertainty then about the cause of diabetes. It had been shown by von Mering and Minkowski[1] that ablation of sufficient pancreatic tissue would provoke diabetes in the dog. It was known from the work of Allen[2] and of Homans[3] that degeneration of the islets in the pancreatic remnant of partially depancreatized dogs was followed by development of diabetes, and it had been observed by Opie[4] that the islets of the pancreas of diabetic patients were frequently abnormal when examined after death. Diabetes mellitus was pancreatic diabetes in those days. In contrast, the subject of the origin of the disease now is enveloped in confusion. In the minds of some authorities, the pancreas has been deposed from its prime position in causation, and diabetes, formerly considered a clinical entity, has been degraded to a syndrome with multiple causes. The pioneer discoveries of Houssay and his colleagues,[5] followed by the work of many others, is responsible for this new point of view, although few of those responsible may share it. Their experiments have revealed that pancreatic diabetes is alleviated by removal of certain organs, notably the pituitary body, the adrenal cortices and the thyroid gland; and furthermore that conditions resembling diabetes are producible experimentally by injection of hormonal products of these organs.

It now has been established that regulation of the blood sugar level is a complex process in which several of the endocrine glands, together with the central nervous system, are engaged. In a mechanical analogy of blood sugar regulation Soskin and Levine[6] (fig. 1) place the liver in the center of the stage, the liver being acted on in one direction (producing hyperglycemia) by the anterior lobe of the pituitary body, the adrenal cortex and the thyroid and in the opposite direction (producing hypoglycemia) by the pancreas. In another diagrammatic representation of the balance between hypoglycemic and hyperglycemic factors McQuarrie and co-workers[7] (fig. 2) picture a beam and scales

---

From the Division of Medicine, Mayo Clinic.

Read before the Section on Internal Medicine at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

[1] von Mering, J., and Minkowski, O: Diabetes mellitus nach Pankreasexstirpation, Centralbl. f. klin. Med. **10**: 393-394 (June 8) 1889.

[2] Allen, F. M.: Studies Concerning Glycosuria and Diabetes, Boston, W. M. Leonard, 1913.

[3] Homans, J.: Degeneration of the Islands of Langerhans Associated with Experimental Diabetes in the Cat, J. M. Research **30**: 49-67 (March) 1914.

[4] Opie, E. L.: Disease of the Pancreas: Its Cause and Nature, ed. 2., Philadelphia, J. B. Lippincott Company, 1910.

[5] Houssay, B. A.; Smyth, F. S.; Foglia, V. G., and Houssay, A. B: Comparative Diabetogenic Action of the Hypophysis from Various Animals, J. Exper. Med. **75**: 93-106 (Jan. 1) 1942.

[6] Soskin, S., and Levine, R.: Carbohydrate Metabolism: Correlation of Physiological, Biochemical and Clinical Aspects, Chicago, University of Chicago Press, 1946.

[7] McQuarrie, I.; Bauer, E. G.; Ziegler, M. R., and Wright, W. S.: The Metabolic and Clinical Effects of Pituitary Adrenocorticotropic Hormone (ACTH) in Spontaneous Hypoglycemosis, Bull. Univ. Minnesota Hosp. **21**: 35-45 (Oct. 14) 1949.

Pancreatic beta cells produce insulin and weight the beam in one direction to cause hypoglycemia. The pituitary body, the adrenal glands, the thyroid, the liver and the diet weight the beam in the opposite direction, possibly assisted by the ovary and a hyperglycemic hormone originating in the pancreatic alpha cells. Stimulation of several of these opposing forces is by the parasympathetic or the sympathetic nerves, which may place the ultimate control of the process with the central nervous system.

As well established as is this multiple control of blood sugar regulation is the fact that preexisting diabetes is profoundly modified by the activity of these insulin opponents. In particular, overfunction of the hypophysis, the adrenal cortices and the thyroid gland leads to aggravation and their underfunction to amelioration of the diabetes.

However, it is not so well established that the hypophysis, the adrenals or any of the insulin antagonists are primarily responsible for diabetes in man, for human diabetes is something more than mere displacement of the level of blood sugar. Permanent derangement of the normal homeostasis is a basic characteristic. "Once a diabetic, always a diabetic" is a maxim to which exceptions are extremely rare, and permanence, as I shall show, is rarely a characteristic of so-called pituitary or adrenocortical diabetes, or of any form of hyperglycemia, except that with which the pancreas is involved.

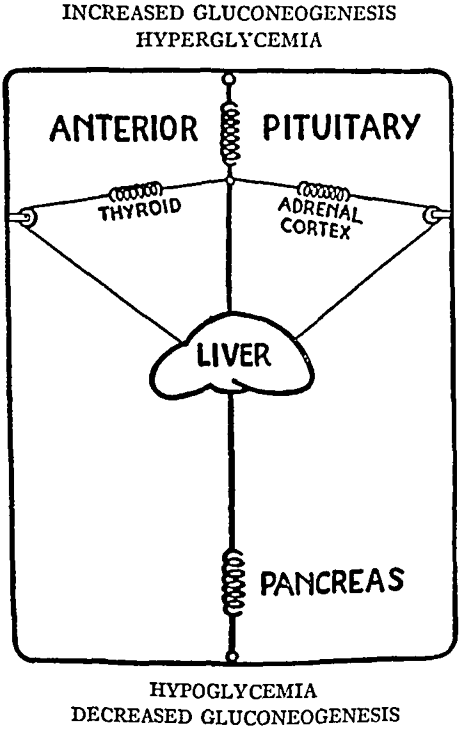


Fig. 1.—Mechanical analogy of carbohydrate metabolism (from Soskin and Levine [6]).

FORMS OF HYPERGLYCEMIA

I shall briefly review the types of hyperglycemia of diverse nonpancreatic origin to observe wherein they differ from the hyperglycemia of human diabetes. One must bear in mind while doing this that both in transient hyperglycemia of whatever origin and in what I am calling the permanent hyperglycemia of human diabetes one is not concerned with the blood sugar level at any particular moment. What is of interest is the permanence of the displacement of the balance. In any type of hyperglycemia the concentration of blood sugar at any moment may be lowered by altering the diet or by administering insulin.

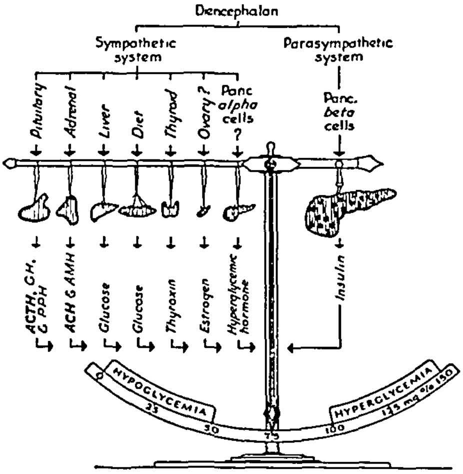


Fig. 2.—Schematic representation of balance between hypoglycemic and hyperglycemic factors affecting carbohydrate metabolism (from McQuarrie, Bauer, Ziegler and Wright [7]). The initials ACTH, GH, PPH, ACH and AMH denote pituitary adrenocorticotropic, gonadotropic, posterior pituitary, adrenocortical and adrenal medullary hormone (epinephrine), respectively.

Toxic Hyperglycemia.—Hyperglycemia with or without glycosuria is met with on occasion in almost all infections, especially at the height of fever. It also may be seen in some intoxications. The transitory nature of such hyperglycemia is a matter of common knowledge. It seldom is confused with diabetes. However, there are two exceptions: the pancreatitis which accompanies mumps can lead to permanent diabetes; so also may the poisoning of an animal with alloxan. However, in both these instances the diabetes is pancreatic diabetes, being dependent on a degree of injury of the insulogenic beta cells of the pancreatic islets.

Neurogenic Hyperglycemia.—At times after the brain has been injured by accident, tumor or operation high values for blood sugar are encountered and glycosuria may be intense. Such hyperglycemia depends on the presence of preformed glycogen in storage in the liver, although at times an alarm reaction is involved with participation of the pituitary-adrenal axis. In any case, these types of hyperglycemia are transitory and seldom are diagnosed as diabetes. It was not so always. Bernard,[8] one hundred years ago, believed that he had produced true diabetes mellitus by his puncture of the floor of the fourth ventricle, and so weighty was his influence that from then until the production of pancreatic diabetes by von Mering and Minkowski [1] many clinical observations of the relationship of diabetes to lesions of the pancreas were disregarded.[9] The mechanism of the effect of the Bernard procedure is still a puzzle. The nerve impulse initiated by his puncture follows the sympathetic nerves and not the vagus nerves, as he himself was the first to demonstrate. Participation of the adrenal medulla was suspected at one time, but this is not essential, because ablation of both adrenal glands will not prevent the effect. The suggestion has been made that a sympathin is liberated elsewhere, perhaps even in the liver, thereby releasing the glycogen in storage in the liver. In any case, the effect can only be observed when preformed glycogen is on deposit in the liver, and no one today regards such neurogenic diabetes as diabetes mellitus.

---

[8] Bernard, C.: Influence de la section des pedoncles cérébelleux moyens sur la composition de l'urine, Compt. rend. Soc. de biol. 1:14 and 60, 1849.

[9] Naunyn, B.: Der Diabetes mellitus, ed. 2., Wien, Alfred Hölder, 1906, p 107.

Injected epinephrine provokes hyperglycemia when the liver contains glycogen, and hyperglycemia sometimes results from spontaneous liberation of epinephrine by tumors of the adrenal medulla (pheochromocytomas). These tumors are very rare; sugar is not always seen with them, and, when it occurs, it disappears with almost no exceptions when the tumor is removed.

Hunger Hyperglycemia.—Hyperglycemia with glycosuria may develop when fasted or semifasted persons are fed with carbohydrate. The phenomenon has been called "hunger," "famine" or "vagabond" diabetes. The response to a glucose tolerance test encountered in a normal subject who has fasted, or whose diet has been high in fat and low in carbohydrate, is a prolonged high blood sugar curve like that which in other circumstances suggests the presence of pancreatic diabetes. In point of fact, this is a form of pancreatic diabetes. It is correctable, however, simply by continuing to feed a diet which is normal with respect to carbohydrate and so is incorrectly diagnosed as diabetes. I observed the same phenomenon when a nondiabetic person was given insulin for a period of days.[10] The most reasonable explanation of the phenomenon is that the cells of the pancreatic islets which manufacture insulin, the so-called beta cells, are lulled into somnolent inactivity either by fasting or by giving insulin and thus, like the "five foolish virgins," find themselves with empty lamps when called. This explanation is supported by histologic studies which reveal fewer negative Golgi images than normal and a paucity of granulations in the beta cells of fasted animals.[11] Furthermore, the amount of insulin recoverable from the pancreas of animals fed little carbohydrate or given insulin has been found to be low.[12]

Thiamine Deficiency.—Hyperglycemia and glycosuria are encountered in beriberi and in experimental thiamine deficiency in man. The fault here is with the utilization of the intermediates having 3 carbon atoms, lactate and pyruvate. This probably effects a degree of retardation of the rate at which dextrose is removed from the blood. The abnormality is correctable with thiamine, which may explain in part the improvement of presumed diabetes occurring in some patients with dysfunction of the liver who are receiving treatment for their hepatic abnormality with vitamins, including thiamine.

Hepatic Hyperglycemia.—Reports[13] that many diabetic patients give evidence of dysfunction of the liver must relate to a different kind of diabetes than is encountered in the Mayo Clinic,[14] where, when patients with cholecystitis and other inflammatory conditions also involving the pancreas are excluded, dysfunction of the liver is uncommon. Likewise, Harold Brown,[15] in a recent study of 25 diabetic persons by means of a battery of liver function tests, obtained no evidence of impaired hepatic function. Fifteen of the patients had been through an episode of acidosis. Furthermore, neither cirrhosis nor hepatitis, when present, has influenced unfavorably the severity of the diabetes. The reverse is to be expected. Hepatic damage, if extensive, provokes a low concentration of blood sugar. Sometimes patients with hepatitis or cirrhosis will have sugar in their urine after meals although their levels of blood sugar before the first meal of the day are normal, low or occasionally very low. There is no evidence to show that utilization of glucose is abnormal in these cases; the fault is with the glycogen warehouse. It is generally agreed that such conditions are incorrectly diagnosed as diabetes mellitus. The diabetes which accompanies hemochromatosis is an exception. The pancreatic islets are injured as much as is the liver in hemochromatosis.

Without the liver sugar cannot be made from protein or other glucose formers. In the absence of the liver the supply of sugar is cut off; therefore, in the fasting animal a degree of hepatic function is a necessary condition for the development of glycosuria. In pancreatic diabetes glycogen formation is disturbed and the rate of gluconeogenesis is increased, but these abnormalities result from insufficiency of insulin and are at once correctable by giving insulin. Glycogenolysis, that is, liberation of preformed glycogen from the liver with resulting transient hyperglycemia, is provoked, as I have said, by toxic and neurogenic irritants of the liver; also, as I shall point out, the rate of gluconeogenesis may increase in response to overfunction of the pituitary-adrenal axis. However, in my opinion this provides insufficient grounds for assuming that the liver is able independently, permanently and continuously to increase the rate at which it manufactures sugar.

Pituitary Hyperglycemia.—The statement frequently has been made that glycosuria occurs in a large proportion of all cases of acromegaly.[16] This is not confirmed by experience at the Mayo Clinic. The incidence of diabetes mellitus in the cases of acromegaly has been relatively low, less than 9 per cent,[14] and the diabetes in half of these cases clearly antedated the disease of the pituitary body. The diabetes usually was mild when the two diseases were associated, but, mild or severe, it usually disappeared, as in examples cited recently by Balfour and Sprague,[17] when the disease of the pituitary body either burned itself out, as frequently happens, or was corrected by operation or other treatment. I interpret this small incidence of acromegalic diabetes and its transitory nature when it does occur as meaning that the pituitary growth hormone—effective as this may be experimentally in provoking diabetes in certain animals[18]—is produced in amounts which are insufficient even in acromegaly to provoke true diabetes mellitus in the otherwise normal man.

---

[10] Wilder, R. M.; Smith, F. H., and Sandiford, I.: Observations on Obesity, Ann. Int. Med. **6**: 724-742 (Dec.) 1932.

[11] Best, C. H.; Haist, R. E., and Ridout, J. H.: Diet and Insulin Content of Pancreas, J. Physiol. **97**:107-119 (Nov. 14) 1939.

[12] Best, C. H., and Haist, R. E.: Effect of Insulin Administration on Insulin Content of Pancreas, J. Physiol. **100**: 142-146 (Sept. 8) 1941.

[13] (*a*) Levy, C. M.; Ryan, C. M., and Fineburg, J. C.: Diabetes Mellitus and Liver Dysfunction, Am. J. Med. **8**:290-299 (March) 1950. (*b*) Lazarow, A.: Factors Controlling the Development and Progression of Diabetes, Physiol. Rev. **29**:48-74 (Jan.) 1949.

[14] Wilder, R. M.: Clinical Diabetes Mellitus and Hyperinsulism, Philadelphia, W. B. Saunders Company, 1940.

[15] Brown, H.: Liver Function in Diabetes Mellitus, Am. J. M. Sc. **218**: 540-542 (Nov.) 1949.

[16] Borchardt, L.: Die Hypophysenglykosurie und ihre Beziehung zum Diabetes bei der Akromegalie, Ztschr. f. klin. Med. **66**:332-348, 1908.

[17] Balfour, W. M., and Sprague, R. G.: Association of Diabetes Mellitus and Disorders of the Anterior Pituitary, Thyroid and Adrenal Cortex, Am. J. Med. **7**: 596-608 (Nov.) 1949.

[18] (*a*) Cotes, P. M.; Reid, E., and Young, F. G.: Diabetogenic Action of Pure Anterior Pituitary Growth Hormone, Nature **164**: 209-211 (Aug. 6) 1949. (*b*) Young, F. G.: Experimental Observations on the Cause of Diabetes, Proc. Roy. Soc. Med. **42**: 321-323 (May) 1949.

At least two so-called diabetogenic products have been obtained from beef pituitary body. Recently a third product, prolactin, has been found to have similar activity.[19] The first of the two diabetogenic products obtained appears to be identical with the growth hormone previously considered. The second is pituitary adrenocorticotropic hormone (ACTH). When the adrenocorticotropic hormone is administered in large amounts to rats it provokes the adrenal cortices to hyperplasia and overfunction with resulting hyperglycemia and glycosuria.[20] Also, when administered to man in sufficient quantities and for a sufficient length of time, this hormone has elicited a "temporary diabetes."[21] The effect in man, however, appears to be inconstant; during the past eighteen months or so pituitary adrenocorticotropic hormone or the adrenocortical hormones themselves have been used in the treatment of a considerable number of patients with several diseases, but relatively little evidence of production of a diabetic type of abnormality has been encountered. The values for the fasting blood sugar of these patients almost always have been normal. In 1 case hyperglycemia with glycosuria developed but disappeared while injections of pituitary adrenocorticotropic hormone were continued The experience related is based on doses which, although small when compared with those inducing diabetes in the rats, were large enough, 100 mg. a day, to elicit in one patient or another one or more of nearly all the other signs and symptoms of Cushing's syndrome.[22] From these observations I am led to the conclusion that the pituitary body, either through its growth hormone or through adrenocorticotropin, plays an exceedingly minor part in the pathogenesis of human diabetes In saying this I am not unmindful of reported observations on the size of some infants of diabetic women and on the stature of some diabetic children at the time of onset of their diabetes. Such observations seem to me to be irrelevant, because, if the pituitary bodies are overactive in these women or these children, other evidence of such activity should be available, but it is not. Furthermore, overfunction of the pituitary body is conceivable only when the function of its target organs (thyroid, adrenal cortices and so forth) is suppressed. These are self-limiting systems, and overfunction of the target organs puts a brake on pituitary function much as extension of the arms of the governor of a steam engine, when the extension reaches a certain limit, shuts off the steam. The simile was suggested to me by Dr. F. D. W. Lukens.

Adrenocortical Hyperglycemia.—The adrenocortical hormones, compound E (17-hydroxy-11-dehydrocorticosterone), now known as cortisone, and its chemical relation, compound F (17-hydroxycorticosterone), will themselves produce a form of diabetes when administered to animals or men. This diabetes, like that which follows injection of pituitary adrenocorticotropic hormone and that observed in patients with Cushing's syndrome, differs in the following important respects from diabetes mellitus: 1. It is highly resistant to insulin. 2. It is accompanied with azoturia (excretion of nitrogen in excess of intake), which continues even when there is no acidosis or at times when, because of dieting, the sugar in the urine is minimal or absent. This behavior is in sharp contrast with that of pancreatic diabetes. 3. In sharp contrast also is an increase in the glycogen in the liver.[23] 4. Corticoid diabetes responds to fasting much more promptly than does diabetes mellitus. A day of fasting will clear the urine of sugar in cases in which the glycosuria has resisted control with as much as 100 units of insulin or more. 5. With rare exceptions, corticoid diabetes is accompanied with some other evidence of adrenocortical hyperfunction, that is, symptoms or signs of Cushing's syndrome or the presence in the urine of greater than normal amounts of corticosteroids. My colleagues, Mason and Sprague, reported the isolation of 191 mg. of crystalline compound F from a 25-day collection of urine of one patient with hyperplasia of his adrenal cortices.[24] This contrasts sharply with the relatively normal excretion of these substances in diabetes mellitus. 6. The hyperglycemia is transitory in the sense that the blood sugar levels return to normal when the adrenocortical hyperfunction is corrected.

Thyrogenic Hyperglycemia.—A small proportion of patients with hyperthyroidism who previously have not been diabetic excrete sugar in small amounts and respond to glucose tolerance tests with high blood sugar curves. In part, this is explained by an increase in the rate of absorption of glucose from the bowel, a characteristic of hyperthyroidism, but this alone is not responsible, for dextrose given by vein at timed rates is utilized by hyperthyroid patients less rapidly than by normal persons.[25] The fault appears to lie in the rate of glycogen formation. In any case, unless a degree of diabetes existed before the onset of the hyperthyroidism, the disturbance is corrected when the thyroid status is restored to normal; hence, this form of hyperglycemia is not to be confused with that of diabetes mellitus.

META DIABETES

The term "meta diabetes" was introduced by Houssay[26] to describe a permanent diabetes which is produced in animals by stresses sufficient in intensity and duration to cause permanent damage to the pancreatic beta cells. Thus metahypophysial diabetes was provoked by Young[27] in adult dogs first with crude pituitary extracts,[27] later with purified growth hormone.[18b] When such extracts are injected into suitable animals, the early changes in the pancreas are identical with those obtained when dogs from which the pancreas has been partially ablated are overfed [2] or when glucose is administered to cats.[28] The beta cells show signs of exhaustion manifested by progressive degranulation, which proceeds to hydropic degeneration; likewise, the insulin content of such a pancreas is diminished until it reaches a tenth or less of normal values.[29] When in such experiments the injections of pituitary extracts are discontinued before they have led to these extreme disturbances, the beta cells regenerate and the pancreas regains its normal insulin content.[30] Only when the damage to the beta cells has been sufficiently severe does regeneration fail. In that case, the diabetes which ensues, like all true pancreatic diabetes, is characterized by permanence.

---

[19] Houssay, B A, and Anderson, E. Diabetogenic Action of Purified Anterior Pituitary Hormones, Endocrinology **45**: 627 629 (Dec) 1949.

[20] Ingle, D J, Li, C H, and Evans, H M · The Effect of Adrenocorticotropic Hormone on the Urinary Excretion of Sodium, Chloride, Potassium, Nitrogen and Glucose in Normal Rats, Endocrinology **39**: 32-42 (July) 1946

[21] Conn, J W; Louis, L H, and Johnston, M W.. Studies upon Mechanisms Involved in the Induction with Adrenocorticotropic Hormone of Temporary Diabetes Mellitus in Man, Proc Am Diabetes A. **8**: 214 236, 1948

[22] Sprague, R G; Power, M H; Mason, H L; Albert, A; Mathieson, D. R, Hench, P S; Kendall, E C, Slocumb, C. H, and Polley, H. F: Observations on the Physiologic Effects of Cortisone and ACTH in Man, Arch Int Med **85**: 199 258 (Feb) 1950.

[23] Miller, A. M Liver Glycogen Responses to Adrenal Cortical Extract of Diabetic and Non Diabetic Rats, Proc Soc Exper Biol. & Med **72**: 635 636 (Dec) 1949

[24] Mason, H L, and Sprague, R G *Isolation of 17-Hydroxycorticosterone from the Urine in a Case of Cushing's Syndrome Associated with Severe Diabetes Mellitus*, J Biol Chem **175**: 451-456 (Aug) 1948

[25] Wilder, R M, and Sansum, W D · *d* Glucose Tolerance in Health and Disease, Arch Int Med **19**: 311 334 (Feb) 1917.

[26] Houssay, B. A Experimental Diabetes, Clin Proc. **5**: 219-230 (July) 1946

[27] Young, F. G: Permanent Experimental Diabetes Produced by Pituitary (Anterior Lobe) Injections, Lancet **2**: 372 374 (Aug. 14) 1937 Young[1b]

Clinical examples of permanent hyperglycemia of this meta type (metahypophysial, metaadrenocortical or metathyroid diabetes, which are examples of permanent diabetes in man secondary to overstimulation from the pituitary body, the adrenal cortex or the thyroid) have as yet not come to my attention. They may occur, but before such a diagnosis is permissible evidence must be presented to show that the patient was not previously diabetic. In the large majority of all cases of acromegaly, Cushing's syndrome or hyperthyroidism little hyperglycemia develops even temporarily, and a normal carbohydrate tolerance returns when the endocrine abnormality has been corrected. This necessitates the conclusion that the normal pancreas possesses the reserve capacity required to meet the overload imposed by these diseases and that normal beta cells have sufficient endurance to escape lasting damage from such stresses.

Obesity and Diabetes.—A form of clinical diabetes to which the designation "meta" applies quite forcibly is that which develops in obesity, representing, I should guess, about 80 per cent of the diabetes observed in adult patients. If it is true that insulin is used to turn glucose into fat, as recent evidence has suggested, the mere existence of obesity may be regarded as an index of pancreatic overload. In any case, the large amount of food which the fat man must consume to attain and maintain his excessive body weight imposes a metabolic stress which creates increased demand for insulin. This stress or overloading may not be severe but it always is of long duration, years on years; hence, in time the beta cells if they originally and presumably genetically are under par can be expected to degenerate, causing lasting diabetes. In the early stages of this type of diabetes, as is true of experimental pituitary hyperglycemia, damage to the pancreas is reversible; when some patients are reduced in weight to an appropriate degree of slimness their diabetes sometimes disappears to the point that the response to a sugar tolerance test is like that of normal persons. However, if such patients regain their former weight their diabetes returns; indeed, it not infrequently returns even if they do not gain any weight. However, diabetes develops in only a rather small minority of the total number of obese persons. Therefore it is safe to say that in cases in which it does develop, the patients started life with something less than normal insular endurance.

COMMENT AND CONCLUSIONS

This review of hyperglycemia of diverse origin has revealed that only when an abnormality of carbohydrate metabolism is characterized by permanence does it resemble human diabetes, which when once acquired is not lost; the maxim "once a diabetic, always a diabetic" holds true almost without exceptions. However, permanence which is a characteristic of human diabetes is observed only in those forms of experimental hyperglycemia which involve destruction of the pancreatic beta cells. These cells in man are sometimes injured by infection of the pancreas, by malignant disease of the pancreas or by hemochromatosis. Alloxan, which chemically is an oxidation product of uric acid, produces necrosis of the beta cells, and uric acid has been said to do the same in animals.[31] This gives rise to speculation about a possible relationship between gout and diabetes. However, association of gout with diabetes is exceedingly rare as is also the association of hyperuricemia without gout.

The beta cells of intact animals may be permanently injured by creating a demand for their incretion of such intensity that it leads to their exhaustion. Demands of this degree have been provoked experimentally by giving glucose intraperitoneally to cats [28] and by long-continued injection of pituitary extracts into adult dogs. In these instances the permanent diabetes which results, so-called meta diabetes, depends on destruction of the beta cells. Thus fundamentally the diabetic state in such meta diabetes is pancreatic diabetes—"in effect a removal of the beta cells instead of a removal of the pancreas as a whole." [32]

There is, however, little evidence to support the view that stress imposed by the hypophysis, the adrenal glands or the thyroid accounts for the original development of the clinical entity, diabetes mellitus. The normal healthy pancreas possesses an endurance which appears to be adequate to resist the stresses created by all degrees of endocrine overfunction encountered clinically. Temporary failure occurs in many instances, with resulting hyperglycemia. However, from the fact that the diabetic state so provoked disappears when the hyperfunction of the insulin opponents is corrected, the inference is clear that the overfunction of the pancreatic beta cells has not led to their destruction, and that true diabetes mellitus has not been produced. Exceptions may occur; so far, they have not come to my attention.

Overweight, or the excessive consumption of food which leads to it, imposes a demand for insulin which not only exceeds normal but is of long duration, extending usually over many years. It thus may lead to damage of the beta cells. However, diabetes develops in only a small proportion of persons who are grossly overweight. Therefore, in those cases in which diabetes is provoked by overweight one can logically assume that the pancreas had less endurance than normal from the outset.

Furthermore, in many instances of diabetes, including almost all cases in which diabetes develops in childhood, one finds no grounds for assuming the existence of abnormal stress of any kind. The causation of diabetes in these cases must therefore rest exclu-

---

28. Dohan, F. C., and Lukens, F. D. W.: Experimental Diabetes Produced by Administration of Glucose, Endocrinology **42**: 244-262 (April) 1948.

29. Best, C. H.; Campbell, J., and Haist, R. E.: The Effect of Anterior Pituitary Extracts on the Insulin Content of the Pancreas, J. Physiol. **97**: 200-206 (Dec.) 1939.

30. Ham, A. W., and Haist, R. E.: Histological Study of Trophic Effects of Diabetogenic Anterior Pituitary Extracts and Their Relation to Pathogenesis of Diabetes, Am. J. Path. **17**: 787-812 (Nov.) 1941.

31. Griffiths, M.: Uric Acid Diabetes, J. Biol. Chem. **172**: 853-854 (Feb.) 1948.

32. Haist, R. E.: Studies in Experimental Diabetes, Am. J. Med. **7**: 585-595 (Nov.) 1949.

sively on a degree of inferiority, anatomic or functional, of the pancreatic beta cells, such that the normal stresses of life imposed by growth, puberty and pregnancy are sufficient to provoke irreversible derangements. Thus, contrary to opinions which have been expressed by Lazarow,[13b] Himsworth,[33] Young,[18b] Bartelheimer[34] and others, one returns to the theory of a unitary origin of diabetes.

Unanswered thus far are those who oppose the theory of a unitary origin of diabetes on the ground that the pancreatic islets in many diabetic persons examined after death show no abnormality. Terbrüggen's[35] recent histologic studies with newer staining methods led him to the conclusion that the pancreatic islets in 80 per cent of cases of human diabetes are small and contain relatively few beta cells but a disproportionate number of alpha cells. Bell,[36] who also used newer staining methods, found an absence or a decided reduction in the number of beta granules in 63 per cent of cases. This leaves 20 to 37 per cent of cases in which there is no anatomic explanation for human diabetes. However, anatomic alterations need not necessarily accompany functional incapacity, and histochemical procedures later may reveal abnormalities not now discernible. In any case, failure consistently to find anatomic abnormality in the pancreas of human beings with diabetes lends no support to the contention that the pituitary body, the adrenal gland or the thyroid play roles of much significance in the basic pathogenesis of human diabetes, for the beta cells in every instance of permanent diabetes produced experimentally by injection of the hormones of these endocrine glands have revealed clear anatomic evidence of damage to the islets.

In any case, the several insulin opponents, endocrine and nervous, including excessive ingestion of food with resulting obesity, important as they are to the regulation of the level of blood sugar, and great as is their influence on the intensity of preexistent diabetes, give rise to diabetes characterized by permanence only when they cause irreversible and in the case of experimental diabetes easily demonstrable lesions of the pancreatic beta cells. This occurs infrequently, if at all, in man, unless the beta cells possess originally and presumably genetically something less than normal endurance. Therefore, in my judgment, diabetes mellitus ought still to be regarded as a clinical entity of pancreatic origin.

---

[33] Himsworth, H. P.: The Syndrome of Diabetes Mellitus and Its Causes, Lancet **1**: 465-473 (March 19) 1949.

[34] Bartelheimer, H.: Die Regulation des Kohlehydratstoffwechsels beim insulären und extrainsulären Diabetes, Deutsche Ztschr. f. Verdauungskr **9**: 238 246; 272-284, 1949.

[35] Terbrüggen, A: Untersuchungen über Inselapparat und Inseladenome des Pankreas, insbesondere Uber die Zelltypen bei Diabetes mellitus und Spontanhypoglykamie, Virschows Arch. f. path. Anat. **315**:407 460 (May 18) 1948

[36] Bell, E T.: The Pathological Anatomy of Diabetes Mellitus, Illinois M. J. **92**: 215-218 (Oct.) 1947.

Misunderstandings To Be Avoided.—A physician, in his relationship with a patient who is under the care of another physician, should not give hints relative to the nature and treatment of the patient's disorder; nor should a physician do anything to diminish the trust reposed by the patient in his own physician. In embarrassing situations, or whenever there seems to be a possibility of misunderstanding with a colleague, a physician should seek a personal interview with his fellow.

From the PRINCIPLES OF MEDICAL ETHICS of the American Medical Association.

REITER'S SYNDROME: EFFECT OF PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) AND CORTISONE

M. A. OGRYZLO, M D.
and
WALLACE GRAHAM, M D.
Toronto, Canada

In 1916 a case report by Reiter[1] drew attention to a symptom complex of arthritis, urethritis, conjunctivitis and diarrhea. Since this original report many others have appeared in the literature describing a syndrome with variable clinical features and under a variety of titles but most commonly "Reiter's syndrome." In general, emphasis has been placed on the triad of urethritis, conjunctivitis and arthritis; diarrhea has frequently been absent. Although some are of the opinion that one or even two components of the triad may not be present in a particular case, others have reported additional features which occur less frequently. These have included balanitis with superficial circinate lesions on the glans penis, superficial ulcerations on the palate, buccal mucosa or tongue, a keratotic dermatitis of the soles and keratotic or pustular lesions affecting the nails of the toes and fingers. Considerable confusion exists regarding the actual boundary of Reiter's syndrome, and many of the case reports included in the earlier European literature have been rejected by Bauer and Engleman.[2]

All but one of the cases so far reported have occurred in young adult males. Usually the initial symptom is acute nonspecific urethritis, commonly following, but sometimes without, a history of sexual exposure. Diarrhea may accompany or precede the urethritis. Prostatitis and cystitis are not unusual. The conjunctivitis may be mild and unnoticed or may be absent. Generally within a period of two weeks an acute polyarthritis develops, the weight-bearing joints being most commonly affected, often in a symmetric manner. Fever and leukocytosis usually occur, and sometimes generalized lymphadenopathy and splenomegaly. The sedimentation rate is elevated. Skin and mucosal lesions are less common and usually appear only in the more severe cases. The joint changes are not unlike those seen in rheumatoid arthritis except that bony destruction and ankylosis are infrequent. As a rule the disease is self limited over a period of several weeks to months, but recurrences are not uncommon.

The causation of the disease remains unknown, although recent evidence suggests that it may be due to an infection with pleuropneumonia-like organisms. These have been recovered from the genitourinary tract[3]

Canadian Arthritis and Rheumatism Society Fellow in Medicine (Dr. Ogryzlo).

The cortisone acetate was made available by the Department of Veterans' Affairs, Ottawa, Ontario.

From the Medical Service, Sunnybrook (D. V. A) Hospital, Toronto, and the Department of Medicine, University of Toronto

The pituitary adrenocorticotropic hormone used in this study was supplied by the Armour Laboratories, Chicago, Dr. John R Mote, medical director.

Dr A A Fletcher initiated the study of plasma fibrinogen in relation to sedimentation rate The biochemical investigations were carried out, in part, in the laboratories of the Department of Pathological Chemistry, University of Toronto, under the direction of Professors J A Dauphinee and A G. Gornall. These studies will be considered in detail in a later report

[1] Reiter, H.: Spirochete Articular Disease, Deutsche med Wchnschr. **42**: 1535, 1916

[2] Bauer, W, and Engleman, E P.: A Syndrome of Unknown Etiology Characterized by Urethritis, Conjunctivitis and Arthritis (So-Called Reiter's Disease), Tr. A. Am Physicians **57**: 307, 1942.

[3] Dienes, L, and Edsall, G: Observations on L Organism of Klieneberger, Proc. Soc Exper. Biol & Med. **36**: 740, 1937. Dienes, L, and Smith, W. E: Relationship of Pleuropneumonia Like (L) Organisms to Infections of Human Genital Tract, ibid **50**: 99, 1942 Dienes, L.; Berg, R L., and Weinberger, H. J.: Further Observations on the Incidence and Significance of Pleuropneumonia Like Organisms, Ann Rheumat. Dis. **7**: 259, 1948

and joint fluid,[4] but experimental inoculation has failed to reproduce the disease. A similar symptom complex of arthritis, diarrhea and urethritis or conjunctivitis, or both, has on occasion been observed to occur with dysentery,[5] and it has been suggested that the syndrome may be nothing more than dysenteric polyarthritis with added toxic manifestations.[6] Furthermore, it has been well known that cases of undoubted rheumatoid arthritis may sometimes be complicated by ocular lesions, urethritis or a brief diarrhea.[7]

This report deals not with controversy whether or not Reiter's syndrome constitutes a distinct clinical entity but with the effect of pituitary adrenocorticotropic hormone and cortisone on three patients with a symptom complex which conforms to the syndrome as described by most authors. Two patients received one course of pituitary adrenocorticotropic hormone and the third this drug followed by cortisone, both intramuscularly and orally. The patients received placebo injections both before and after the administration of the drugs and had no knowledge of the changes in medication. Daily observations were made on the clinical response. Laboratory studies included hematological and biochemical changes, erythrocyte sedimentation rates, serum protein fractionations, serum and urinary electrolytes, carbohydrate tolerance, urinary nitrogen excretions, urinary 17-ketosteroids, serial electrocardiograms and electroencephalograms, blood pressure, heart size and changes in body weight.

REPORT OF CASES

Case 1.—G. E. W., a man aged 29, was well until March 1943, when acute arthritis with pain, redness and swelling of the right wrist developed. Three months later the condition spread to the left ankle and both knees. The arthritis gradually subsided over six months, except for residual swelling and restricted movement of the right wrist. There was no history of urethritis or conjunctivitis, but the patient recalled having keratotic lesions on both soles. In subsequent years he had repeated exacerbations affecting one or more of several joints for periods of a few weeks to several months. During one of these episodes in 1945 he had an acute purulent urethritis which lasted for one week, but no neisserian organisms were demonstrated.

On Sept. 17, 1949 he suffered another attack of acute arthritis with severe systemic reaction, anorexia, fever and excessive perspiration. The right ankle and foot, and the left fourth and fifth toes were acutely painful, swollen and red. There was a history of sexual exposure two weeks before this exacerbation, followed in six days by a cloudy urethral discharge in smears of which gonococci were not found. The discharge did not clear, and the arthritis was not prevented by adequate penicillin therapy. With the onset of the joint swelling, painless, shallow, ulcerating lesions developed on the glans penis and in the mouth. There was no conjunctivitis. The man was admitted to Sunnybrook Hospital Sept. 27, 1949.

Examination revealed gross swelling, tenderness, redness and increased heat in the right ankle and foot, the interphalangeal joint of the right great toe and the proximal interphalangeal joints of the left fourth and fifth toes. There was an old deformity of the right wrist with decided restriction of movement. Roentgenograms of the wrist revealed pronounced destructive change with loss of joint space.

Many circinate areas of ulceration were present over the hard and soft palate, with similar lesions on the glans penis and prepuce and with a mild urethral discharge. There was no lymphadenopathy, but the spleen was palpable 3 cm. below the left costal margin. Blood and dark field examinations revealed normal conditions, and urethral smears did not show neisserian organisms.

The urethritis cleared in two weeks, but fever (to 101 F.) persisted for seven weeks. There was some improvement in the pain and swelling in the right ankle and toes, but three weeks after admission there developed an acute exacerbation in the left knee with severe pain, swelling and joint effusion. At the same time scattered hyperkeratotic reddish brown lesions varying from 2 to 5 mm. appeared over both soles. Keratotic lesions with suppuration also involved the nails of the toes and later of the fingers. Some of the toenails were subsequently shed. When the present observations began, the patient was confined to bed or occasionally used a wheelchair.

After placebo injections of saline solution had been given to the patient, pituitary adrenocorticotropic hormone was administered intramuscularly in doses of 25 mg. at six hour intervals throughout the twenty-four hours. Therapy was started Dec. 5, 1949 and was continued for 12 consecutive days.

Joint stiffness disappeared within 24 hours after administration of the drug and joint pain and tenderness after three days. There was a progressive decrease in the joint swelling, although a small amount of free fluid persisted in the left knee and the right ankle and left fourth toe remained a little swollen. The patient became fully ambulatory in three days and regained full range of movement in all joints in one week.

The oral lesions healed in three days and the penile lesions in 12 days. There was progressive healing of the keratodermia of the feet and about the nails, with considerable desquamation of the overlying skin. The sedimentation rate (Westergren), dropped from levels of 70 to 90 mm. per hour to 7 mm. per hour after 11 days. A distinct change in the mental attitude of the patient was manifested by mental exhilaration and mild euphoria.

Two days after withdrawal of the drug there was a mild recurrence of swelling and pain in the affected joints and reappearance of the lesions in the mouth, genitalia and soles. These were not severe and subsided gradually over the next four weeks. The sedimentation rate increased to 37 mm. in one hour but subsequently dropped to normal levels as the patient improved. He was discharged from the hospital on Feb. 6, 1950 and is now fully employed.

Case 2.—F. W., a married man aged 35, had an injury to his left knee in 1944 followed by stiffness, swelling and intermittent locking. In June 1944 the medial meniscus was removed, after which there was a rather slow recovery with residual stiffness persisting. On Oct. 1, 1949 there rapidly developed stiffness, pain and swelling of the right knee and local redness. One week later there occurred mild urethritis and soreness of the gums. Scattered, small, brownish lesions appeared on the soles. There were no eye symptoms.

The patient was admitted to Sunnybrook Hospital Oct. 16, 1949 with a temperature of 100 F. Over the posterior part of the palate and left buccal mucosa were small reddened areas of superficial ulceration, which extended to the inner gingival margin. The tongue was acutely inflamed. There was no lymphadenopathy or splenomegaly. The glans penis was reddened and excoriated with several areas of superficial ulceration, and there was a mild urethral discharge. The right knee was hot, red, swollen and acutely painful, with restriction of flexion and extension. The left knee was moderately swollen and tender with a small effusion but had a full range of movement. Over the soles there were a number of small, firm, brownish hyperkeratotic lesions. Smears and cultures of the urethral discharge were negative for gonococci or pleuropneumonia-like organisms. The sedimentation rate (Westergren) varied between 67 and 86 mm. per hour.

During his first two months in the hospital the patient showed some improvement, with clearing of the urethral discharge and gradual healing of the lesions on the soles. Some swelling and effusion persisted in the knees, although he was partially ambulatory. The oral and genital lesions improved but did not entirely heal. The sedimentation rate dropped to 15 mm. per hour. Pituitary adrenocorticotropic hormone was administered in doses of 10 mg. four times daily, commencing Jan. 23, 1950, for 14 consecutive days. It was preceded and followed by placebo injections. Within 48 hours there was a progressive decrease in joint pain and stiffness; a full range of movement was possible at the end of 10 days. Joint swelling and effusion gradually subsided in three days, but slight residual thickening persisted. The patient became fully ambulatory by the fifth day. The lesions in the mouth and on the glans penis healed in seven days. The sedimentation rate dropped to 1 mm. per hour. Although his mental outlook improved significantly he became emotionally more labile, experiencing periods of elation and on one occasion displaying unusual depression with weeping.

---

[4] Dienes, L., and others: Medical Progress: Role of Pleuropneumonia-Like Organisms in Genitourinary and Joint Diseases, New England J. Med. **238:** 509 and 563, 1948.

[5] Young, R. H., and McEwen, E. G.: Bacillary Dysentery as Cause of Reiter's Syndrome (Arthritis with Nonspecific Urethritis and Conjunctivitis), J. A. M. A. **134:** 1456 (Aug. 23) 1947.

[6] Beiglböck, W.: Treatment of Reiter's Disease, Trop. Dis. Bull. **41:** 571, 1944.

[7] Hench, P. S., and others: Rheumatism and Arthritis: A Review of American and English Literature of Recent Years (Ninth Rheumatism Review), Ann. Int. Med. **28:** 309, 1948.

Within 24 hours of the discontinuance of the drug, pain and stiffness recurred in the right knee and fluid reappeared in the joint. Acute glossitis developed after 24 hours, progressing to superficial erosions along the margins of the tongue, while similar erosions occurred on the roof of the mouth. The genital lesions did not recur. Two weeks later the mucosal lesions were again healed, and all joint swelling subsided in four weeks. The patient was discharged from the hospital on April 26, 1950 without disability and is now employed.

CASE 3.—D. A. F., a married man aged 24 years, was admitted to the hospital in 1946 with pain, swelling and effusion of about 12 months' duration in the left knee. He denied any history of venereal disease. The swelling subsided promptly over a period of six weeks, but shortly afterward recurred in both knees. He received a course of gold sodium thiomalate (myochrysine®) totaling 1.675 Gm. and a course of fever induced by typhoid vaccine, but he had frequent exacerbations in one or both knees over a period of 30 months. The arthritis finally subsided, and he remained well for one year before his present admission.

On March 26, 1950 he noticed a cloudy urethral discharge, and when he awakened the next morning both knees were red, swollen and acutely painful. Two days later a diffuse vesicular eruption appeared over the glans penis with rupture of some of the vesicles, leaving small superficial erosions. On the fifth day both ankles were involved. The illness was associated with fever, excessive sweating, anorexia and on one occasion nausea and vomiting. There was no diarrhea. He was admitted to Sunnybrook Hospital on April 3, 1950.

On admission the patient was acutely ill and perspiring profusely. His temperature was 101 F. There was injection of the conjunctival vessels but no purulent discharge. A small herpetic lesion was on the upper lip. Lymphadenopathy was not present, and the spleen was not palpable. A diffuse vesicular eruption covered the glans penis, extending back beyond the corona, and there was a purulent urethral discharge. Both knees were hot, red, swollen and acutely tender. Movement produced excruciating pain. Both ankles were tender with slight swelling in the right ankle. Urethral smears were negative for neisserian organisms. The reaction of the blood to the Kahn test was negative, and the sedimentation rate (Westergren) was 110 mm. per hour.

His condition remained relatively unchanged during the first 12 hospital days, except for clearing of the urethral discharge. Treatment with pituitary adrenocorticotropic hormone was begun April 13, 1950 in doses of 25 mg. every six hours for 14 days.

The joints remained acutely painful for the first four days, after which there was a gradual but progressive decrease in the pain, swelling and tenderness, and a noticeable clearing of the genital lesions. He was ambulatory after 10 days with little pain in the knees, although he could not extend them fully. There was slight periarticular swelling, some tenderness and a little fluid in each knee at the end of 14 days. The penile lesions healed completely, and the sedimentation rate dropped to 39 mm.

Within 14 hours of discontinuance of the drug the patient had a severe relapse with acute pain, swelling and increased heat in all the joints previously affected plus pain and swelling in the left wrist and left shoulder. Several ulcers appeared on the tongue, and the urethral discharge recurred, with a return of the vesicular lesions on the glans penis. The sedimentation rate increased to 93 mm. in seven days. On the third day after therapy ended he had several episodes of oppressive pain in the retrosternal area, lasting up to 30 minutes without radiation and unaffected by breathing.

Eight days after discontinuance of the drug the patient was started on cortisone acetate administered intramuscularly in two daily injections. He received 300 mg. daily for 3 days, 200 mg. daily for 10 days and 150 mg. daily for 10 days, totaling 4.4 Gm. Slight improvement was evident within 24 hours, becoming more definite after 48 hours with decrease in joint pain and swelling, increase in range of movement and clearing of the urethral discharge and genital lesions. By the sixth day he had little joint pain; by the eighth day he was ambulatory. Improvement was gradual thereafter, but although he was able to walk comfortably he continued to have slight tenderness in all the affected joints, with some residual swelling and a little fluid in each knee joint. Flexion and extension of the knees remained slightly limited. The sedimentation rate dropped to 31 mm. by the sixteenth day.

Relapse of joint symptoms after the withdrawal of cortisone intramuscularly given was more gradual than that after pituitary adrenocorticotropic therapy. There was slight increase in pain, tenderness and swelling in all the affected joints within 48 hours. A small number of vesicles again appeared on the penis after 72 hours. Within seven days there was a full relapse of the arthritis with increased pain and swelling in the knees, the ankles and the left wrist, though somewhat less severe than that following the initial course of hormonal therapy. The sedimentation rate increased progressively to a maximum of 108 mm. after 12 days. Although some improvement occurred during the next five weeks, the patient continued to have pain with swelling in the affected joints and the erythrocyte sedimentation rate remained high.

After Freyberg[8] and Hench[9] reported the effectiveness of cortisone orally in tablet form this patient was given a second course of cortisone acetate by the oral route, using the injectable material as supplied in ampul form. The drug was given in two divided doses, 12 hours apart, commencing July 4, 1950. He received 300 mg. orally each day for three days, 200 mg. daily for 10 days and 150 mg. daily for 4 days, a total of 3.5 Gm.

On this occasion there was a noticeable reduction in joint pain and stiffness within six hours and nearly complete relief of pain and local tenderness in 24 hours. Range of movement at the knees returned almost to normal, and he again became ambulatory. During this remission, as in the others, slight swelling with a small amount of fluid persisted in the knees, although pain was for the most part abolished. The sedimentation rate dropped progressively to 23 mm. per hour by the seventeenth day.

It appeared that the remission induced by the orally administered cortisone was in every way comparable to that following pituitary adrenocorticotropic or cortisone therapy by intramuscular injection. Subjective relief of joint pain and stiffness actually occurred more quickly. Withdrawal of the hormone was again followed by an increase in the sedimentation rate and a return of joint pain over a period of five to seven days. This time, however, the relapse was of a rather mild character and did not confine the patient to bed. He is still under observation, although he is considerably improved.

CLINICAL OBSERVATIONS

The foregoing case reports clearly demonstrate that patients with so-called Reiter's syndrome respond dramatically to the administration of either pituitary adrenocorticotropic hormone or cortisone. The improvement in these patients was prompt and sustained during the period of drug administration. Joint swelling subsided rapidly and pain and tenderness disappeared, although some evidence of residual arthritis persisted in a mild form. Relapse on withdrawal of the hormones was rather prompt in all cases, but the symptoms usually were not as severe and the subsequent course was one of improvement. The skin and mucosal lesions followed a similar pattern.

---

[8] Freyberg, R. H.: Data read before the American Rheumatism Association, San Francisco, June 23, 1950.

[9] Hench, P. S.: Data read before the American Rheumatism Association, San Francisco, June 23, 1950.

No appreciable difference could be detected in the clinical response to the two drugs in the third patient, except that the relapse after the intramuscular injection of cortisone was more gradual and less severe, but this was probably due to his initial improvement after the use of pituitary adrenocorticotropic hormone.

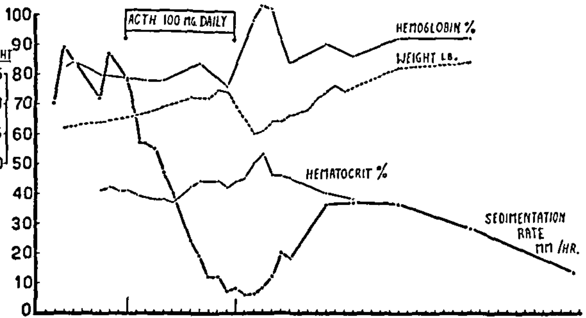


Fig. 1 (case 1). — Effect of pituitary adrenocorticotropic hormone (ACTH) on hemoglobin, hematocrit, sedimentation rate and body weight.

When cortisone was given in comparable doses in this patient, it was equally effective in inducing a remission of symptoms whether it was administered by the intramuscular or the oral route. The response was prompter following its oral administration and appeared to be equally well sustained. This observation has also been confirmed in patients with rheumatoid arthritis,[10] although there is some indication that the required dose may be a little larger than with intramuscular injections. Recurrence of joint pain after orally administered cortisone was much less severe than after the intramuscular injections, possibly due to the over-all benefit derived from the previous two courses of hormone administration.

The fact that in two patients a single course of pituitary adrenocorticotropic therapy was able to produce a prompt remission of the disease, followed by a mild short-lived relapse which went on to gradual recovery, is significant from the point of view of a practical therapeutic measure. It was believed that the course of the illness was materially shortened in both instances and probably also in the third. In rheumatoid arthritis such lasting benefit has been observed only in an occasional patient,[11] and the more hopeful result in Reiter's syndrome is no doubt due to the self limited nature of this disease.

Only one of the three patients (case 3) was febrile when the present observations were begun. The oral temperature dropped from levels of 101 to 102 F. to normal within 24 hours of institution of pituitary adrenocorticotropic therapy but rose promptly the day after the drug was withdrawn. It again dropped to normal within three days of his receiving cortisone, but on withdrawal it again became elevated, though not to its previous level.

Decided stimulation of appetite with gain in weight was evident in all three patients. Some of the weight gain was obviously due to water retention and was promptly lost when hormonal therapy was discontinued, but part of the gain was nutritional and was maintained. Improvement in mental outlook was prominent in all three patients, and a mild euphoria was noticeable in one. One patient was exceedingly labile and exhibited a transient mild depression with weeping on one occasion.

Serious complications were not observed. Transient pain at the site of injection was common. Two patients had a mild acneform eruption on the face and shoulders. Ringing in the ears occurred in one patient but was not troublesome. Two patients complained of moderately severe, constricting pain across the anterior part of the chest or retrosternally, beginning within two or three days after discontinuance of pituitary adrenocorticotropic hormone. This occurred in episodes lasting up to half an hour but was not associated with sweating or signs of shock. Examination of the heart revealed no evidence of cardiac impairment, and the symptoms subsided within two days. In one patient the retrosternal pain was accompanied with recurring abdominal cramps without diarrhea. No significant change in blood pressure or heart size was noted.

LABORATORY OBSERVATIONS

A decrease in the total circulating eosinophils was observed during administration of both hormones. Cortisone was effective (case 3) in lowering the eosinophil count whether given by the intramuscular or the oral route, but toward the end of the period of intramuscular administration the total count increased gradually to its previous level, although symptoms were well controlled.

The total white blood cell count increased in two patients while they were receiving one of the two drugs. One patient showed no rise in leukocyte count. The counts increased to as much as 24,200 per cubic millimeter, due entirely to a polymorphonuclear leukocytosis. There was little alteration in the absolute number of lymphocytes.

The hemoglobin concentration and red blood cell counts decreased slightly during the period of hormonal administration. This was interpreted as being due to hemodilution, since it coincided with evidence of water retention. On the discontinuance of treatment with either of the agents there was a rise in both the hemoglobin and red cell counts coinciding with the period of water diuresis and weight loss. The rise was interpreted as being largely due to hemoconcentration because the count subsequently dropped, but the rise was also due

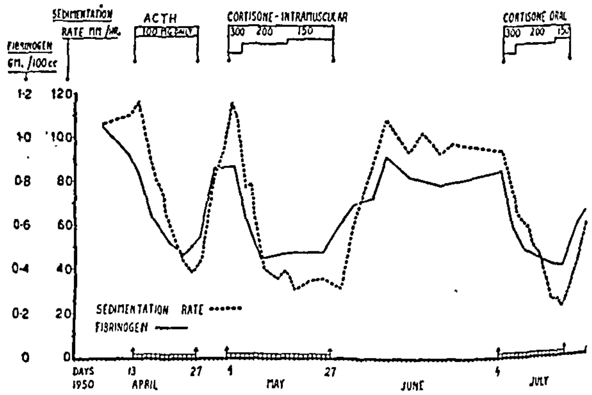


Fig. 2 (case 3). — Effect of pituitary adrenocorticotropic hormone (ACTH) and cortisone on sedimentation rate and plasma fibrinogen.

---

[10] Ogryzlo, M. A.: Unpublished data.

[11] Hench, P. S., and others: Effects of Cortisone Acetate and Pituitary ACTH on Rheumatoid Arthritis, Rheumatic Fever and Certain Other Conditions, Arch. Int. Med. 85:545 (April) 1950.

in part to an absolute increase since in two patients it was subsequently maintained at a higher level.

Sedimentation rates dropped rapidly to normal or near normal levels during both forms of therapy but increased again on withdrawal. The decrease in sedimentation rate was as prompt with orally administered cortisone as with the intramuscularly given drug. With the more lasting clinical improvement after the discontinuance of pituitary adrenocorticotropic therapy the sedimentation rate again dropped in a corresponding fashion in the two patients whose studies are complete (fig. 1).

Estimation of the urinary electrolytes in one patient (case 1) maintained on a fixed intake of sodium and potassium showed decided sodium and chloride retention during the first three days of his receiving pituitary adrenocorticotropic hormone and an immediate pronounced diuresis on withdrawal. The potassium excretion showed little change. Serum sodium and chloride levels were raised, while the serum potassium was lowered by the administration of the drug.

Two patients (cases 2 and 3) who were maintained on a constant dietary intake showed a decided increase in the daily excretion of total nitrogen, urea nitrogen and amino acid nitrogen in the urine, while they were receiving pituitary adrenocorticotropic hormone; these values fell sharply on withdrawal of the drug. The increase was sufficient to induce a negative nitrogen balance. Uric acid excretion was only moderately increased, and the serum uric acid was lowered slightly.

The serum protein fractions were normal in all three patients. A significant drop in the total globulin occurred in each instance, largely because of a drop in the euglobulin fraction. The plasma fibrinogen was abnormally high in two patients (cases 1 and 3) and was observed to drop dramatically to normal levels while they were receiving either of the two drugs. The third patient (case 2) also showed a drop in plasma fibrinogen, even though it remained within the normal range. On withdrawal of either of the two hormones the plasma fibrinogen levels again rose to approximately their former levels. In patients with rheumatoid arthritis the level of plasma fibrinogen has been observed to parallel closely the clinical activity of the disease process and to bear a close relation to the erythrocyte sedimentation rate.[12] The same parallelism of clinical activity, sedimentation rate and plasma fibrinogen was observed in these patients (fig. 2).

A definite decrease in tolerance to orally administered glucose was demonstrated in two patients, with an elevation of tolerance curve, during the period of pituitary adrenocorticotropic therapy. Glycosuria was not noted. A significant increase in the daily excretion of the urinary 17-ketosteroids occurred in all three patients while they were receiving the hormone. No change was observed in the basal metabolic rate in one patient. Electrocardiographic changes were confined to slight lowering of the height of the T waves during the period of administration of either of the hormones. This was probably due to a lowering of the serum potassium. Electroencephalographic changes were minimal. In two patients low voltage, slow wave activity, three to six per second, appeared during the period of pituitary adrenocorticotropic hormone administration, with a return to the previous alpha rhythm on withdrawal.

SUMMARY

Pituitary adrenocorticotropic hormone (ACTH) was administered to three patients with the clinical symptoms of Reiter's syndrome. One of these subsequently received cortisone both intramuscularly and orally. The response in each instance was prompt and dramatic. Withdrawal of the hormones was followed by a relapse of symptoms, mild in two patients and more severe in one. Two of the patients have recovered after the initial relapse and are now fully employed, but the third is still under observation. The course of the disease was materially shortened in the two patients who have recovered and probably in the third. The sustained improvement in two patients suggests a possible therapeutic application of pituitary adrenocorticotropic hormone and cortisone in a self limited disease such as Reiter's syndrome. Cortisone was effective in inducing a remission of symptoms whether administered by the intramuscular or oral route.

---

[12] Fletcher, A. A.; Dauphinee, J. A., and Kelly, H. G.: Unpublished data.

HYPERTHYROIDISM, PREGNANCY AND THIOURACIL DRUGS

GEORGE O. BELL, M.D.
Boston

The literature on the use of thiouracil drugs in the treatment of hyperthyroidism complicated by pregnancy is scant and in most instances is confined to reports of one or two cases. My experiences and those of associates at the Lahey Clinic with 21 such cases are, therefore, being reported with the hope of partly filling in this gap in our knowledge.

Since the introduction of thiouracil in 1943, this drug or its derivatives have been used at the clinic in the preoperative preparation of over 1,900 thyrotoxic patients. There were 21 women whose hyperthyroidism was complicated by pregnancy. Three patients had recurrent hyperthyroidism, and 18 had primary hyperthyroidism. Subtotal thyroidectomy was performed on each patient during the course of the pregnancy after she had been prepared with one of the thiouracil drugs and strong iodine (Lugol's) solution. The duration of hyperthyroidism ranged from two months to four years. The duration of pregnancy at the time of operation ranged from three weeks to five months. The average basal metabolic rate before antithyroid treatment was + 48 per cent and before operation + 10 per cent. The amount of thyroid tissue removed at operation averaged 70 Gm. Antithyroid drugs were administered for periods ranging from 28 to 90 days; all 21 mothers underwent thyroid surgery without complications and recovered fully. The pregnancy did not influence the course of the hyperthyroidism or its response to thiouracil drugs.

Follow-up reports from the patients on the pregnancies are incomplete. Since the clinic does not have an obstetrics department, all patients who had undergone thyroid operation were referred to their own obstetricians for further care. No special thyroid or iodine treatment was prescribed. Six women have not yet reached full term and are apparently well. Ten women were delivered at term of 11 normal children. One woman aborted at five months, and two women were delivered prematurely at eight months; one of a

---

From the Department of Internal Medicine, Lahey Clinic.

macerated stillborn fetus and the other of a "deformed"[1] baby who died four hours after birth. Preeclampsia developed in one patient near term, and the child died at birth. One woman was delivered by cesarean section at term, and the baby died six hours later. The fetal loss in the 15 patients whose pregnancies have terminated is 33 per cent.

Reports on 11 living children indicate that all were normal at birth and have developed normally since then. Their present ages range from 11 months to 5 years. One set of twins is now 5 years old; both children are well in all respects.

COMMENT

The association of hyperthyroidism and pregnancy is uncommon. The incidence of hyperthyroidism among pregnant women is about 0.2 per cent, whereas the incidence of pregnancy in patients with hyperthyroidism ranges from 0.41 to 3.0 per cent.[2]

The number of cases herein reported is too small to permit final conclusions. The outstanding fact, however, is the unsuccessful outcome of five pregnancies. Such a result may well have been inevitable and totally unrelated to the thyroid disease, the antithyroid medication or the thyroid operation. Nevertheless, inspection of such a relation is worthy of consideration.

The problems presented by this combination of conditions may be considered under three main divisions: (1) the mother and the hyperthyroidism, (2) the pregnancy and its complications and (3) the child.

THE MOTHER

With the use of the thiouracil drugs, it is now possible to control hyperthyroidism completely, no matter how severe it may be. Full control of hyperthyroidism permits the surgeon to perform subtotal thyroidectomy with little risk to the patient and with an excellent chance of obtaining a complete remission of the disease. At the clinic, we have felt that the patient who has the combination of hyperthyroidism and early pregnancy should have the hyperthyroidism eliminated by subtotal thyroidectomy after preparation with one of the thiouracil drugs and strong iodine solution. Reports in the literature provide ample evidence that subtotal thyroidectomy during the course of pregnancy does not disturb the pregnancy. Abortions immediately following thyroid operations are unusual, and the postoperative complications of tetany or myxedema are rare. Our pregnant patients have had subtotal thyroidectomy performed through the fifth month of pregnancy, and the operation is probably safe through the first six months. Hyperthyroidism during the last trimester is probably best treated by antithyroid drugs until sometime after delivery when subtotal thyroidectomy can be done.

THE PREGNANCY

Uncontrolled hyperthyroidism is accompanied by a high incidence of abortions, premature births and toxemias. Javert[3] reported an incidence of toxemia of pregnancy associated with hyperthyroidism of 77 per cent, Kibel[4] 55 per cent and McLaughlin and McGoogan[5] 26 per cent. Brandes[6] at the Mayo Clinic found no increase in toxemias of pregnancy among 75 patients with hyperthyroidism. This wide discrepancy in reports is difficult to explain, but the weight of evidence favors the fact that toxemias may occur oftener when hyperthyroidism complicates the pregnancy. Relief of the hyperthyroidism as quickly as possible would eliminate whatever influence this factor may have on the incidence of such complications.

Hypothyroidism, on the other hand, has also been thought to be an important factor in the cause of toxemias of pregnancy. Hughes[7] found that the administration of desiccated thyroid to all normal pregnant women with basal metaboilc rates below zero reduced the incidence of preeclampsia by 50 per cent as compared with an equally large control group to whom no thyroid was given. Patterson, Nicodemus and Hunt[8] claimed that a relative state of hypothyroidism leads to changes in the placenta which produce late toxemias of pregnancy and that the administration of desiccated thyroid early in pregnancy would prevent these.

Peters, Man and Heinemann[9] found that the serum-precipitable iodine is high throughout normal pregnancy, falling shortly before delivery. Their data suggest that, if the serum-precipitable iodine is low early in pregnancy, miscarriage is likely to occur. Administration of thyroid to such patients resulted in a rise in the level of serum-precipitable iodine and permitted the patients to go to term.

Delfs and Jones,[10] in a study of abortion, found that low chorionic gonadotropins were often associated with abortions and that low thyroid function was found to occur frequently with low chorionic gonadotropins. Decreased thyroid function may possibly be a major factor in the cause of recurrent abortions.

Hypothyroidism induced in female adult rats by prolonged administration of thiouracil drugs does not cause sterility but does interfere with the continuation of gestation, causing resorption of fetuses in 100 per cent of cases. If the drug is given for less than 100 days some rats do deliver normal litters. It was concluded that resorption of fetuses was the result of the induced myxedema and not of the thiouracil toxicity.[11]

The management of hyperthyroidism in pregnancy with thiouracil drugs either preoperatively or as prolonged treatment must, therefore, take into account the possible harm to the pregnancy from the inadvertent production of myxedema. Furthermore, the temporary depression of the metabolism which often occurs during the first three or four months following thyroidectomy should be viewed with equal concern.

---

[1] It has been impossible to obtain further information on this report.

[2] Jondahl, W. H.; Banner, E. A., and Howell, L. P.: Management of Pregnancy Complicated by Toxic Goiter: Report of Case, Proc. Staff Meet., Mayo Clin. **24:** 358-363 (June 22) 1949.

[3] Javert, C. T.: Hyperthyroidism and Pregnancy, Am. J. Obst. & Gynec. **39:** 954-963 (June) 1940.

[4] Kibel, I.: Hyperthyroidism and Pregnancy, Am. J. Obst. & Gynec. **48:** 553-556 (Oct.) 1944.

[5] McLaughlin, C. W., Jr., and McGoogan, L. S.: Hyperthyroidism Complicating Pregnancy, Am. J. Obst. & Gynec. **45:** 591-603 (April) 1943.

[6] Brandes, R. W.: Pregnancy Complicated by Thyroid Disease Amenable to Surgical Treatment: A Clinical and Pathological Study, thesis, University of Minnesota Graduate School, 1948.

[7] Hughes, E. C.: Relationship of the Thyroid and Adrenal Glands to the Toxemias of Pregnancy, Am. J. Obst. & Gynec. **40:** 48-60 (July) 1940.

[8] Patterson, W. B.; Nicodemus, R. E., and Hunt, H. F.: Hypothyroidism: Etiologic Factor in Eclampsia, Pennsylvania M. J. **41:** 983-988 (Aug.) 1938.

[9] Peters, J. P.; Man, E. B., and Heinemann, M.: Pregnancy and the Thyroid Gland, Yale J. Biol. & Med. **20:** 449-463 (May) 1948; cited by Tenny, B., Jr.: Medical Progress: Obstetrics, New England J. Med. **242:** 133-139 (Jan. 26) 1950.

[10] Delfs, E., and Jones, G. E. S.: Endocrine Patterns in Abortion, Obst. & Gynec. Surv. **3:** 680-692 (Oct.) 1948; cited by Tenny, B., Jr.: Medical Progress: Obstetrics, New England J. Med. **242:** 133-139 (Jan. 26) 1950.

[11] Jones, G. E. S.; Delfs, E., and Foote, E. C.: Effect of Thiouracil Hypothyroidism on Reproduction in the Rat, Endocrinology **38:** 337-344 (June) 1946.

THE CHILD

The possible effect of thiouracil on the fetus has been the center of attention of recent writers. In 19 reports[12] on the outcome of pregnancy in women who have received the thiouracil drugs, there were 22 normal children. Two fetuses were examined at five months, when the pregnancy was interrupted, and both were found to have hyperplastic and enlarged thyroids. One full term infant had an enlarged thyroid, which eventually returned to normal size. One child was born prematurely but was otherwise normal. One child was an anencephalic monster whose thyroid was found to be normal, and exophthalmos developed in one child, normal at birth, at 2 months of age with subsidence at 3 months of age.

Experimental use of thiouracil drugs in pregnant rats has resulted in activation and hyperplasia of the thyroid and retarded growth in the offspring, changes which are temporary if treatment with the drug is stopped.[13]

Freiesleben and Kjerulf-Jensen[14] in experiments on *rats proved that thiouracil compounds are transmitted* from mother to fetus through both the placenta and the breast milk. Furthermore, thyroid hyperplasia in infantile rats could be prevented by concurrent administration to the mothers of thyroid hormone along with the thiouracil drug. They concluded that the danger to infants is not from the thiouracil itself but from the low concentration of thyroxin in the tissues, induced by the thiouracil.

In 1921 Marine and Kimball[15] noted that Halsted had shown in dogs that if the thyroid is removed before or at an early stage of pregnancy and rigid precautions are taken to exclude iodine the young at birth have enlarged thyroids, whereas if iodine is available the young at birth will have normal thyroids. In addition, these same authors reported that there is always a decrease in the iodine content of the mother's thyroid during pregnancy and that the administration of iodine to all pregnant women (particularly in the goiter belt) lessened drastically the incidence of congenital goiter, cretinism and other evidences of thyroid dysfunction.

Parkin and Greene,[16] reporting on pregnancy occurring in cretinism and myxedema, cited the histories of six women who came under their observation. One was pregnant at the time of writing. The other five had had a total of 10 pregnancies, six ending in delivery of full term normal infants and three terminating in abortions—a fetal loss of 30 per cent.

Reports on hyperthyroidism and pregnancy in which the outcome of the pregnancies is recorded indicate a fairly high percentage of fetal loss. Gardiner-Hill[17] found that 54.5 per cent of such pregnancies terminated unsuccessfully. Clute and Daniels[18] reported 15 pregnancies in which subtotal thyroidectomy was done during the pregnancy with the excellent results of 14 normal living babies and one miscarriage. Mussey, Plummer and Boothby[19] in 1926 reported 42 pregnancies with adequate follow-up of 37; the fetal loss was seven, or 19 per cent. Mussey, Haines and Ward[12e] (1948) reported an additional 30 pregnancies associated with hyperthyroidism in which the follow-up of 20 was adequate. The fetal loss was four out of 20, or 20 per cent.

CONCLUSIONS

Several factors appear to influence the pregnancy which is complicated by hyperthyroidism, namely, the hyperthyroidism, thiouracil drugs, iodine lack and thyroid hormone lack. The hyperthyroidism can be quickly terminated with little risk to the mother by the use of antithyroid drug preparation and subtotal thyroidectomy. *Furthermore, after such treatment, the babies* which are born alive at full term, although rarely showing transient enlargement of the thyroid, are usually normal and develop normally thereafter. Attention must be focused chiefly on the difficulties arising in the *pregnancy and the fetus.* Uncontrolled hyperthyroidism is attended by a high incidence of fetal loss and late complications of pregnancy, but with current antithyroid therapy uncontrolled hyperthyroidism should cease to be a problem. Myxedema or decreased thyroid function is detrimental to the outcome of the pregnancy as well as to the offspring. It is likely that this factor may be most important in the progress of the pregnancy and measures to combat it may possibly prove to be most valuable. The use of desiccated thyroid or iodine in pregnancy is not a new idea, but its use in connection with pregnant patients who have been treated with thiouracil drugs and subtotal thyroidectomy for hyperthyroidism has not been emphasized or urged. Whether the results of pregnancy can be improved remains to be seen, but it seems desirable to apply the following suggestions:

1. Induced myxedema should be avoided in patients receiving a thiouracil drug by repeated observations of the metabolic rate and blood cholesterol throughout the period of medication. It is to be remembered that the basal metabolic rate in normal pregnant women remains at a normal level until the sixth month. Thereafter it rises to a level of + 20 or + 25 per cent during the last trimester.

2. Lowered metabolic levels after thyroidectomy should be avoided by the administration of desiccated thyroid throughout the remainder of the pregnancy. One to 2 grains (60 to 120 mg.) of desiccated thyroid daily should provide enough thyroid hormone and probably enough iodine to eliminate any existing iodine and thyroid hormone lack, and 3 to 5 drops of strong iodine solution daily would certainly provide sufficient iodine.

3. The above measures may prove to be sufficient in those women whose histories reveal other normal pregnancies. In those women with histories of previous unsuccessful pregnancies the diethylstilbestrol therapy

---

[12] (*a*) Jondahl, Banner and Howell[2] (*b*) Caren, R: The Goitrogens in Thyrotoxicosis Complicating Pregnancy Case Report, J Clin Endocrinol **9:** 903 907 (Sept) 1949. (*c*) Frisk, A R, and Josefsson, E: Thiouracil Derivatives and Pregnancy, Acta med Scandinav, 1947, supp. 196, pp 85 91. (*d*) King, R. W., and Collen, M F.. Thiouracil in the Treatment of Hyperthyroidism Complicating Pregnancy. Presentation of 2 Cases, Permanente Found. M. Bull **5:** 15-18 (March) 1947. (*c*) Mussey, R D; Haines, S F., and Ward, E Hyperthyroidism and Pregnancy, Am J. Obst & Gynec. **55:** 609 619 (April) 1948 (*f*) Strouse, S, and Drabkin, C · Hyperthyroidism in Pregnancy Treated with Thiouracil, J. A M A. **131:** 1494-1495 (Aug 31) 1946 (*g*) Whitelaw, M. J Thiouracil in the Treatment of Hyperthyroidism Complicating Pregnancy and Its Effect on the Human Fetal Thyroid, J. Clin Endocrinol **7:** 767-773 (Nov) 1947.

[13] Goldsmith, E D.; Gordon, A S, and Charipper, H. A: An Analysis of the Effects of Continued Thiourea Treatment in Pregnancy and on the Development of the Offspring in the Rat, Am J. Obst & Gynec. **49:** 197-206 (Feb) 1945. Hughes, A M: Cretinism in Rats Induced by Thiouracil, Endocrinology **34:** 69 76 (Jan) 1944.

[14] Freiesleben, E, and Kjerulf Jensen, K The Effect of Thiouracil Derivatives of Fetuses and Infants, J. Clin Endocrinol **7:** 47 51 (Jan) 1947.

[15] Marine, D, and Kimball, O P.. The Prevention of Simple Goiter in Man, J. A. M A. **77:** 1068 1070 (Oct. 1) 1921

[16] Parkin, G, and Greene, J A. Pregnancy Occurring in Cretinism and in Juvenile and Adult Myxedema, J Clin Endocrinol. **3:** 466 468 (Aug) 1943

[17] Gardiner Hill, H.: Pregnancy Complicating Simple Goitre and Graves' Disease, Lancet **1:** 120 124 (Jan. 19) 1929.

[18] Clute, H. M, and Daniels, D. H.: Hyperthyroidism and Pregnancy, Am J M Sc. **179:** 477-482 (April) 1930.

[19] Mussey, R. D.; Plummer, W. A., and Boothby, W. M.: Pregnancy Complicating Exophthalmic Goiter and Adenomatous Goiter with Hyperthyroidism, J. A M A **87:** 1009 1012 (Sept. 25) 1926.

of Smith and Smith[20] should be added to the aforementioned measures. These authors have obtained excellent results in the prevention of late complications of pregnancy and associated fetal loss. Its use in our type of patient, by helping to maintain normal growth and development of the placenta, may possibly improve our current statistics of 33 per cent fetal loss.

4. Closer cooperation between obstetricians and thyroidologists is urged. Careful follow-up of the results of pregnancy in women with hyperthyroidism may throw further light on this aspect of the problem, and the actual need for such treatment as suggested herein may be more clearly defined.

SUMMARY

Study of 21 women whose hyperthyroidism complicated their pregnancy revealed the following facts:

1. Subtotal thyroidectomy after preparation with thiouracil drugs and iodine can be done safely during the first two trimesters with little risk to the patient and with remission of the hyperthyroidism.
2. Full term living infants born to such patients have been normal.
3. Results of pregnancy in 15 women who have been followed to term include 10 full term normal deliveries with 11 healthy children, one abortion at five months, two premature births at eight months (one a macerated fetus and one deformed infant that died four hours after birth), one case of toxemia at term with death of the infant and one cesarean section at term with death of the infant six hours later. This represents a fetal loss of 33 per cent.
4. A higher fetal salvage is desirable, and arguments are presented which show the dangers particularly of hypothyroidism which either is induced by antithyroid drugs or occurs subsequent to thyroidectomy.
5. Therapy directed toward fetal salvage is suggested and includes the avoidance of overdosage with antithyroid drugs, the administration of thyroid and iodine after thyroidectomy and the possible use of diethylstilbestrol therapy throughout pregnancy.

---

[20] Smith, O. W.: Diethylstilbestrol in the Prevention and Treatment of Complications of Pregnancy, Am. J. Obst. & Gynec. **56**: 821-834 (Nov.) 1948. Smith, O. W., and Smith, G. V.: Use of Diethylstilbestrol to Prevent Fetal Loss from Complications of Late Pregnancy, New England J. Med. **241**: 562-568 (Oct. 13) 1949.

Rabies in Animals.—In the United States, epizootics in skunks have been responsible for at least fifty cases of human rabies. A nickname for skunks in the West is "phobey" cat because of the animal's role in causing hydrophobia. In Kansas, in 1873, about forty people, primarily men who camped out on the plains, died of rabies caused by skunk bites. In Arizona, in 1907, rabid skunks were said to have caused the death of 10 people. California, Oregon and Nevada had a huge outbreak of rabies in wild animals in 1915 and 1916. The coyote was the principal vector in this case. To illustrate how a vigorous campaign of wildlife decimation will stop an epidemic of rabies and eventually eradicate it, Nevada's experience is worth citing. By 1931, that State had rid itself of rabies, but only after 89,000 coyotes, bobcats and mountain lions were destroyed as well as several thousand smaller mammals. Fox rabies has been on the increase in the United States since 1940. Especially involved have been the Southeastern States. However, New York State has a remarkable feature; dog rabies has been controlled effectively while fox rabies is still rampant. In those areas where wildlife rabies exists, there is also a correspondingly great loss from cattle rabies. New York State is such an example.—Raymond Fagan, Rabies in Animals Other Than Dogs, *CDC Bulletin*, U. S. Public Health Service Communicable Disease Center, Atlanta, Ga., October 1950.

RELATION OF CREATININE TO NONPROTEIN NITROGEN IN AZOTEMIC STATES

PETER GABERMAN, M.D.
DONALD H. ATLAS, M.D.
ERWIN M. KAMMERLING, M.D.
LEE EHRLICH, M.D.
and
JULIEN ISAACS, M.D.
Chicago

Extrarenal azotemia, it seems to us, is a nonspecific term that has been used to describe such varied conditions as acute renal insufficiency, reversible uremia, lower nephron nephrosis, shock kidney and crush syndrome. The use of these terms almost interchangeably in the literature has resulted in considerable confusion. It is probable that many of the conditions classified under these headings are of different pathogenesis and that the pathological picture in the kidney will vary. Also, the pathogenesis may be of extreme diversity, varying from peripheral vascular collapse in acute toxemias to late secondary shock in traumatic injuries and including medical, surgical, obstetric, dermatological and orthopedic conditions. Because of such diversity, it seems improbable that the renal effect is always identical.

It has been our observation that there were occasional cases in which a disproportion in the relation between creatinine and nonprotein nitrogen existed. It was our general impression that this disproportion was observed more commonly in conditions of extrarenal azotemia. A survey of the English literature has revealed a paucity of information on the significance of the relation between the rise in nonprotein nitrogen values and the rise in creatinine values, especially in conditions other than primary renal insufficiency. Bell and Knutson[1] stated that in extrarenal azotemia there is no constant relation of these two components. Fishberg[2] has observed that the increase in urea content of the blood may be considerable before the creatinine value rises in acute glomerulonephritis and in prerenal azotemia. Patch and Rabinowitch,[3] in a statistical analysis of a large series of observations, reported that when the creatinine values were normal or nearly normal, symptoms of uremia were usually absent in spite of the high urea values. Livermore[4] stated that, while urological obstructive cases early may show a normal or low creatinine content with a high nonprotein nitrogen level, in long-standing obstruction the creatinine and nonprotein nitrogen values are both high. Although numerous detailed studies of the syndrome of extrarenal azotemia appear in the literature,[5] there are curiously few reports on creatinine levels. Therefore, it appeared worth while to investigate this relation in cases of extrarenal azotemia, primary renal azotemia and postrenal or obstructive uropathies.

From the Departments of Medicine, Chicago Medical School and Mount Sinai Hospital, and the Department of Pathology, Hektoen Institute for Medical Research of the Cook County Hospital.

[1] Bell, E. T., and Knutson, R. C.: Extrarenal Azotemia and Tubular Disease, J. A. M. A. **134**: 441 (May 31) 1947.

[2] Fishberg, A. M.: Hypertension and Nephritis, ed. 4, Philadelphia, Lea & Febiger, 1939.

[3] Patch, F. S., and Rabinowitch, I. M.: Urea and Creatinine Contents of Blood in Renal Disease; A Statistical Analysis of 5,000 Observations, J. A. M. A. **90**: 1092 (April 7) 1928.

[4] Livermore, G. R.: High Non-Protein Nitrogen and Creatinine with Report of Cases, J. Urol. **57**: 390 (Feb.) 1947.

[5] Moon, V .H.: Renal Deficiency Associated with Shock, J. A. M. A. **134**: 425 (May 31) 1947. Corcoran, A. C., and Page, I. H.: Renal Damage from Ferroheme Pigments: Myoglobin, Hemoglobin, and Hematin, Texas Rep. Biol. & Med. **3**: 528, 1945. Burch, G. E., and Ray, C. T.: Lower Nephron Syndrome, Ann. Int. Med. **31**: 750 (Nov.) 1949.

MATERIAL AND METHODS

The patients studied in this investigation were mainly from the Cook County and the Mount Sinai hospitals. The classification of our cases into the three categories was determined by clinical and laboratory findings, and, in many cases, by postmortem examinations. Of the 22 patients with extrarenal azotemia, there were 12 deaths and eight autopsies. Repeated determinations of nonprotein nitrogen by the method of Koch and McMeekin,[6] creatinine by the method of Folin and Wu[7] and urea nitrogen as described by Gentzkow[8] were done on these patients. Urine examinations consisted of determinations of albumin, sugar, acetone and specific gravity and microscopic examination of the sediment. When practicable, total urinary output was measured. The study consists of 22 cases of extrarenal azotemia, 15 of primary renal azotemia and seven cases of postrenal azotemia. All chemical determinations were done in the same research laboratory at the Chicago Medical School by the same technician.

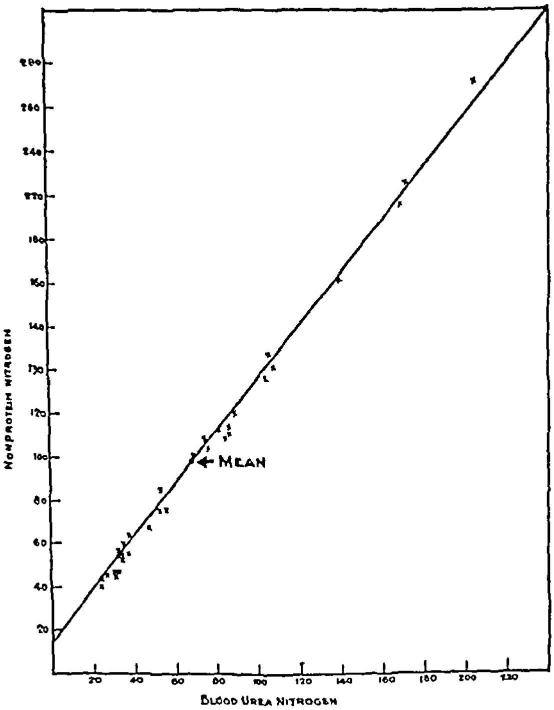


Fig 1—Values in all figures are given in milligrams per 100 cc

There was a wide variety of causative conditions in the cases of extrarenal azotemia, such as pneumonia, heart failure, hepatic diseases, diabetic acidosis, acute pancreatitis, crush syndrome, hyponatremic acidosis, hypochloremic alkalosis and sulfonamide reactions. The causative conditions in the cases of primary renal azotemia were of all the usual types other than acute glomerulonephritis. The postrenal azotemia group consisted of patients with benign prostatic hypertrophy and patients with obstructive cancer of the lower urinary tract. Patients were selected at random in these three categories. The primary object of this report was a study of nonprotein nitrogen partitions in extrarenal azotemia. The other two categories were studied for comparative and control purposes. The treatment of these patients was not under our management. During the period of study, treatment of extrarenal azotemia varied considerably, and, therefore, no consistent form of therapy was followed.

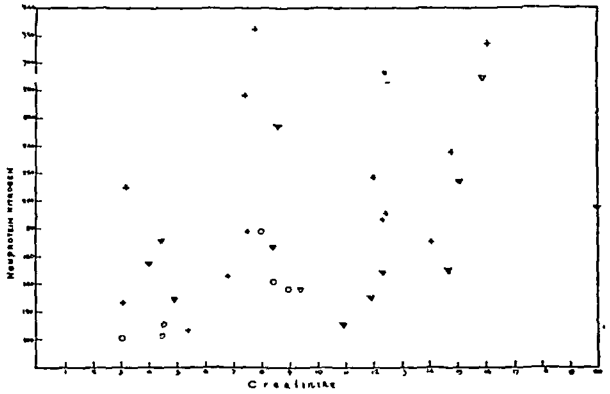


Fig 2—Relation of creatinine to nonprotein nitrogen in three types of renal insufficiency The inverted triangle represents renal insufficiency; the plus sign represents extrarenal insufficiency and the circle postrenal insufficiency

RESULTS

In the analysis of the nonprotein nitrogen, blood urea nitrogen and creatinine values in 33 serums from 26 patients of all three categories, a linear correlation was found between nonprotein nitrogen and blood urea nitrogen of 0.996 plus or minus 0.001. In 56 serums from 44 patients a correlation coefficient of nonprotein nitrogen to creatinine of 0.892 plus or minus 0.018 was found.

Our data indicate that the nonprotein nitrogen and urea values can be computed from each other by the use of the regression formulas:

$$\text{urea} = 0.82\,(\text{N.P.N.} - 10.3)$$
$$\text{N.P.N.} = 1.21\,(\text{urea} + 12.4).$$

The straight line in figure 1 is drawn from an average of the two regression formulas.

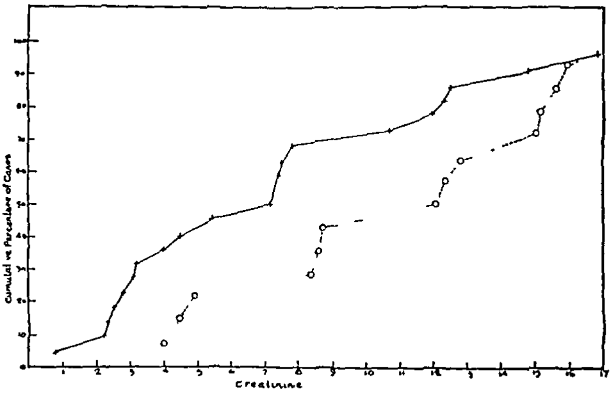


Fig. 3—Cumulative distribution polygons for creatinine levels in extrarenal and renal azotemia based on values associated with the single or maximum nonprotein nitrogen determination for each case The unbroken line represents 22 cases of extrarenal azotemia and the broken line 14 cases of renal azotemia

Our results substantiate the work of previous authors,[9] in that, at lower levels of azotemia, urea constitutes about 50 per cent of the nonprotein nitrogen, and at progressive increments of nonprotein nitrogen it rises to constitute almost 90 per cent.

---

[6] Koch, F. C., and McMeekin, T. L: A New Direct Nesslerization Micro-Kjeldahl Method and a Modification of the Nessler-Folin Reagent for Ammonia, J Am Chem Soc **46:** 2066 (Sept) 1924.

[7] Folin, O, and Wu, H: A System of Blood Analysis, J Biol. Chem **38:** 81 (May) 1919.

[8] Gentzkow, C J.: Accurate Method for Determination of Blood Urea Nitrogen by Direct Nesslerization, J. Biol Chem **143:** 531 (April) 1942

[9] Peters, J. P, and Van Slyke, D D: Quantitative Clinical Interpretation, ed 2, Baltimore, Williams & Wilkins Company, 1946, vol 1.

Of the 13 patients with primary renal azotemia with nonprotein nitrogen values above 100 mg. per 100 cc. only two had creatinine values below 8 mg., the lowest being 4.4 mg.; whereas, of the 14 patients with extrarenal azotemia with nonprotein nitrogen values above 100 mg. per 100 cc., 10 had occasional determinations in which the creatinine value was 8 mg. or less. Of six patients who had postrenal azotemia with the nonprotein nitrogen value above 100 mg., all had occasional creatinine determinations below 8 mg., one of which was below 4 mg. Although no diagnostically statistical pattern was discernible in the three groups, in general a creatinine value disproportionably low as compared to the nonprotein nitrogen increment is indicative of extrarenal or postrenal azotemia.

Of 14 patients with extrarenal azotemia with nonprotein nitrogen values above 100 mg., only four survived. Postmortem examinations in nine cases revealed the cause of death to be the primary disease or trauma rather than the secondary renal involvement, although undoubtedly the acute renal insufficiency was a major factor in hastening death. The essential features of the four surviving patients with extrarenal azotemia with nonprotein nitrogen values above 100 mg. are shown in the table. Quantitative phenol and xanthoproteic determinations on these patients will be reported in another communication.

COMMENT

The wide range of creatinine values in the extrarenal group is of interest. In one fatal case of nephrosis due to sulfonamides the nonprotein nitrogen rose to 352 mg. per 100 cc., at which time the creatinine value was 20 mg., while in another similar fatal case the nonprotein nitrogen value was 276 mg., at which time the creatinine level was only 7.4 mg. It is our impression that in extrarenal azotemia the creatinine and nonprotein nitrogen levels do not have the grave prognostic implications comparable values would have in primary renal disease. An illustrative case is that of S. P. in the table. The nonprotein nitrogen values reached 189 and the creatinine 16 8 mg. per 100 cc. At this point, the patient manifested such uremic symptoms as stupor and twitching. Yet complete recovery was effected 12 days later. Recently a number of reports of similar cases of reversible acute renal insufficiency have appeared in the literature.[10]

As can be seen in the table and chart of the four surviving patients, the creatinine value tends to drop toward normal levels more rapidly than the nonprotein nitrogen or blood urea nitrogen. Fishberg [2] has offered a reasonable explanation for the discrepancy between nonprotein nitrogen and creatinine in certain cases of extrarenal azotemia. He suggests that this is due to

Clinical Data on Four Patients with Reversible Acute Renal Insufficiency with Complete Recovery

	History and Salient Physical Findings	Date	Nonprotein Nitrogen, Mg./100 Cc.	Blood Urea Nitrogen, Mg / 100 Cc.	Creatinine, Mg / 100 Cc.	Hemoglobin	Chloride, mEq.	Carbon Dioxide Combining Power, Vol %	Course and Therapy
E. S., 42 yr. old Negro man; rheumatic heart disease, mitral and aortic valvulitis; recurrent congestive failure, salt depletion syndrome	Symptoms of recurrent congestive failure for 3 yr. Discharged from hospital on 7/12/48, symptom free; given biweekly mercurial injections with low salt diet, readmitted 1/18/49 in acute congestive failure; given daily mercurial injections and digitalis, compensation effected in 3 days, but mercurial injections continued to 1/26/49	6/ 3/48	38	...	...	..	...	.	Symptoms of salt depletion syndrome recognized 1/28/49. Given 2,000 cc isotonic sodium chloride solution intravenously for 2 days and salt by mouth ad lib Maintenance doses digitalis continued. Discharged in well compensated state on moderately low salt diet
		7/12/48	45	...	..	..	.	..	
		1/18/49	57	...	1.7	..	...	..	
		1/26/49	142	...	6.2	..	...	..	
		1/27/49	133	.	8 7	..	...	..	
		1/28/49	162	104	9 0	41		..	
		1/29/49	162	...	8 7	..	104	18	
		1/31/49	178	139	7 5	34	106	.	
		2/ 1/49	156	110	4.7	34	113	38	
		2/ 2/49	108	88	2 8	22	.		
		2/ 4/49	75	55	2 1	27	..	..	
		2/ 7/49	52	33	2 1	33	108	..	
		2/ 9/49	53	..	2 4	33	...	..	
		2/14/49	46	30	1.7	34	...	..	
		2/16/49	61	41	2 7	33	...	..	
		2/21/49	45	28	1 8	32	117	..	
A. H., 38 yr. old Negro woman; diabetic acidosis with coma	Admitted to hospital 1/10/49 with typical findings of severe diabetic acidosis, temp 102 F, Kussmaul respirations, deep coma; high blood sugar, urine showed 4+ sugar and acetone	1/14/49	142	...	...	..	...	..	Usual treatment of severe diabetic acidosis Complete recovery of consciousness within 24 hours Urine free of sugar and acetone in 48 hours
		1/15/49	152	...	7 2	..	...	..	
		1/17/49	150	..	8 0	.	...	..	
		1/18/49	145	120	6 8	46	.	.	
		1/19/49	140	107	5 5	35	...	..	
		1/21/49	83	65	3 1	30	...	..	
		1/24/49	46	30	1.6	26	...	..	
		1/25/49	36	22	1 4	26	...	..	
G. S, 26 year old white woman, acute alcoholic gastritis; prolonged vomiting; profound electrolyte disturbance	Admitted in semistuporous condition; continuous vomiting 2 days prior to admission; extreme dehydration; treatment of alkalosis with excessive amounts of ammonium chloride, saline and 1/6 M lactate resulted in swing to acidosis and hemodilution on 2/11/49	2/ 5/49	93	...	..	..	67	92	Electrolyte balance established and patient made a complete recovery Discharged symptom free with a normal blood chemistry
		2/ 7/49	107		5 8	..	97	27	
		2/ 8/49	107	86	5 4	30	98	.	
		2/ 9/49	108	86	5 4	27	...	..	
		2/11/49	99	.	4 2	.	118	35	
		2/14/49	64	...	2 8	.	...	46	
		2/15/49	47	31	2 6	21	.	..	
		2/17/49	43	22	2 5	22	.	..	
		2/21/49	44	24	2 1	23	100	..	
		2/28/49	36	16	2 0	32	...	..	
S P., 64 yr old white man; sulfonamide nephrosis; acute renal insufficiency	Influenzal type respiratory infection treated with sulfonamides; admitted to hospital 3/14/49 with uremic symptoms, twitching semistuporous, pronounced oliguria; urinary output less than 300 cc daily for 4 days	3/14/49	136	84	11 5	..	82	39	10% dextrose intravenously and orange juice by mouth, total limited to 1,000 cc daily during period of oliguria Given fluids to balance output and saline as needed for electrolyte balance during subsequent period of diuresis. Complete recovery effected
		3/15/49	135	90	11 6	43	94	42	
		3/16/49	...	...	.		96	41	
		3/17/49	164	...	13 4	39	103	42	
		3/18/49	170	.	14 1	38	103	32	
		3/19/49	189	105	16 8	.	102	43	
		3/20/49		104	..	..	106	48	
		3/21/49	150	..	11 1	40	...	..	
		3/22/49	122	92	9 2	.	104	53	
		3/23/49	130	95	6 2	36	..	57	
		3/24/49	122 5	85 5	6 6		105	64	
		3/25/49	101	..	4 8	36	..	..	
		3/26/49	.	59	. .		114	50	
		3/28/49	73	45	2 3	38	113	49	
		3/30/49	58	40	2 4	35	107	49	
		4/ 1/49	...	37	...	..	102	50	

---

[10] Peters and Van Slyke [9] Leff, I L; Rosenberg, B; Eisenmenger, W. J., and Steele, J. M · Recovery from Uremia: A Report of 5 Case, Am. J. M. Sc 217: 666 (June) 1949. Stock, R. J.: Acute Urinary Suppression: Observations in 22 Patients, Am J Med 7: 45 (July) 1949

the fact that urea is eliminated solely by glomerular filtration while creatinine is excreted by both filtration and tubular excretion. This would indicate that, although pathologically the tubules are primarily involved, in severe extrarenal azotemia the earliest effects may be on the glomeruli. Fishberg[2] also reports that he has observed this same phenomenon of increase in urea with normal creatinine in the first stages of mechanical urinary obstruction.

SUMMARY AND CONCLUSIONS

To determine the significance of the relation of creatinine to nonprotein nitrogen, we studied 44 cases of azotemia of a wide variety in the three general categories of primary renal, extrarenal and postrenal or obstructive uropathy. No diagnostically significant correlation between creatinine and nonprotein nitrogen was found in any of the three categories. Although the creatinine level may be increased in proportion to the nonprotein nitrogen elevation in all three categories, a creatinine value disproportionately low as compared with elevation of the nonprotein nitrogen is usually indicative of extrarenal or postrenal azotemia.

Fifteenth Place and California Avenue (8).

PHYSICAL MEDICINE AND REHABILITATION STUDY

One Year Report in Particular Relation to the Chronically Ill

NILA KIRKPATRICK COVALT, M.D.
Rocky Hill, Conn.

Seven hundred and ninety-seven patients were referred to the Department of Physical Medicine and Rehabilitation in its first year of operation, the first applied step in the study of rehabilitation for the chronically ill of this state. Patients were studied from July 1, 1948 to June 30, 1949 at the combined State of Connecticut Veterans' Home and Hospital and the Hospital for Chronic Illness, Rocky Hill, Conn., operated by the State Veterans' Home and Hospital Commission. The program is conducted under the auspices of the State Commission on the Care and Treatment of the Chronically Ill, Aged and Infirm, subsequent to studies which have been carried out by the State of Connecticut since 1938.[1]

PURPOSE AND ORGANIZATION OF THE STUDY

The 1947 survey revealed 15,000 chronically ill persons already under the care of one of the various state agencies. Forty per cent of these were under the age of 40; of the total, 40 per cent were bed patients. The commission wished to learn which members of this group could be made physically self sufficient or even returned to part or total economic usefulness and what plans must be made for the current and future care of the chronically ill in this state.

The state needed to know the type and extent of additional facilities necessary for the current case load and to determine what might have to be provided by the state, municipalities or private agencies. The first program was to be established in an existing facility and expanded to other municipal and private facilities as quickly as possible. Additional state construction was to be planned according to the needs demonstrated by this study.[2]

The program was started in the State Veterans Home and Hospital, where a five story unit of 328 beds and an enlarged surgical department had been completed in 1948 but had not been occupied. The older hospital unit included 284 beds, a domiciliary of 760 beds, a large auditorium, homes and dormitories for the medical, hospital and administrative staff and full maintenance shops.

Veteran residents of Connecticut who meet certain well defined admission requirements are eligible for admission to this home and hospital. They must enter through the hospital for a check-up, after which they may be discharged to the home—where they can stay indefinitely if they continue to meet the administrative rules. They may return to the hospital as outpatients for treatment of minor illnesses, and they are readmitted to the hospital as bed patients when necessary.

It was decided that the State Commission for Care of the Chronically Ill, Aged and Infirm could also admit a certain proportion of welfare patients to this hospital for medical evaluation, for any indicated medical or surgical treatment and for rehabilitation. These patients were to be nonveterans referred for care by one of the various state agencies. These patients could not be moved to the veterans' home but were to be returned to their own homes or to some convalescent or boarding home when treatment or training had been completed. The original referring agency would then resume responsibility.

Both veteran and nonveteran patients receive the same opportunity for treatment and training without any discrimination in status or segregation in the hospital. Administration is under the joint state and veterans commissions, and the combined facility is known as the Hospital for Chronic Illness. It will continue in the same facility until the entire bed capacity is needed by the veterans commission for its own patients or until the state commission builds its own facility.

The hospital serves patients with acute general medical and surgical requirements but is also able to care for those with lengthy and chronic illness. The fact that veteran patients can remain in the home and that patients receiving state aid can be kept here at no greater cost to the welfare department than that for their care in other institutions means that studies and treatment can be continued over long periods of time when necessary. This study in rehabilitation is not designed in the first instance to show the savings possible with a full program of physical medicine and rehabilitation, but it affords an opportunity to demonstrate what can be done when adequate time is available.

From the Hospital for Chronic Illness.

Chief, Physical Medicine and Rehabilitation, Hospital for Chronic Illness, Rocky Hill, Conn., and Associate Clinical Professor of Medicine, Yale University School of Medicine, New Haven, Conn.

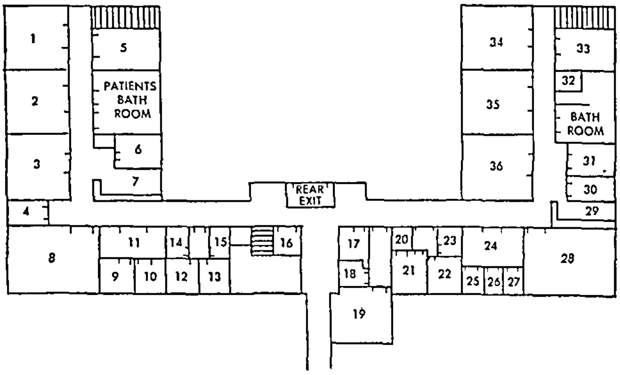
Published with permission of the Medical Director, Connecticut State *Commission on the Care and Treatment of the Chronically Ill, Aged and* Infirm, Dr. A. Nowell Creadick, who assumes no responsibility for conclusions drawn by the author.

[1] The State Commission on the Treatment and Care of People Afflicted with Physical or Mental Disabilities, 1940. Need for a State Infirmary for the Care and Treatment of Aged, Infirm and Chronically Ill Persons, report to the General Assembly by the Public Welfare Council, State of Connecticut, 1945. Suggestions Concerning State Infirmaries for the Aged, Infirm and Chronically Ill, Connecticut Public Expenditure Council, Inc., 1944. Creadick, A. N., and Howard, J. H.: Developments in the Care of the Chronic Sick in Connecticut, Connecticut M. J. **11:** 141 (Feb.) 1947. Planning for the Chronically Ill. Joint Statement of Recommendations by American Hospital Association, American Public Welfare Association, American Public Health Association and American Medical Association, J. A. M. A. **135:** 343-347 (Oct. 11) 1947. Creadick, A. N.: State Program for Chronically Sick, Connecticut M. J. **11:** 836-837 (Oct.) 1947. A Report to the Governor and the General Assembly, Commission on the Care and Treatment of the Chronically Ill, Aged and Infirm, State of Connecticut, 1947. Digest of Connecticut Administrative Reports to the Governor, ibid., vol. 2, 1947-1948, pp. 375-380, vol. 3, 1948-1949, pp. 356-363.

[2] (*a*) Wilbur, R. L., and Krusen, F. H.: Report on a Community Rehabilitation Service and Center (Functional Plan), New York, Baruch Committee on Physical Medicine, 1945. (*b*) Bennett, R. L.: Functional Testing and Training in Physical Medicine, Arch. Phys. Med. **30:** 263-271 (May) 1949.

A program of physical medicine and rehabilitation must be based on a sound medical diagnosis. Many of the patients admitted through the joint state commissions need a complete medical evaluation. It is done routinely for all patients. It includes inspection and correction of dental, visual and aural difficulties in addition to any indicated medical or surgical treatment. The psychiatric, psychosomatic and social difficulties of each patient are considered as a necessary step to understanding the patient and his problems. Attending specialist consultants were added to assist the hospital staff in this evaluation and treatment.

There were approximately 250 patients in the older hospital unit when the Department of Physical Medicine and Rehabilitation officially opened June 1, 1948. The new wards were gradually opened until all the hospital beds were filled during the winter months. The domiciliary portion also filled to capacity during the same period, but about half its occupants left during the spring and summer of 1949. The turnover in acute illness is similar to that in other hospitals for the care of patients with acute general medical and surgical problems. The acutely ill as well as the chronically ill patients are included in this study.



Floor plan of the Department of Physical Medicine and Rehabilitation, Hospital for Chronic Illness, showing location of 1, power tools; 2, medium crafts; 3, light crafts; 4, photo laboratory; 5, print shop; 6, occupational therapy preparation room; 7, office space, 8, recreation, clinics and movies; 9 and 10, classrooms; 11, library; 12, 13 and 14, classrooms including speech therapy, vocal rehabilitation and education office; 15, occupational therapy office; 16, elevator; 17, staff dressing room, 18, elevator; 19, brace shop; 20, doctor's examining room; 21, doctor's office; 22, director of vocational education; 23, secretary's office; 24, staff room, 25, physical therapy office; 26, social service office; 27, recreation office; 28, gymnasium; 29, office space; 30, whirlpool bath; 31, Hubbard tub; 32, physical therapy class treatment; 33, peripheral vascular disease thermal control, and 34, 35 and 36, physical therapy treatments. The scale is 1/32 inch to 1 foot. There are approximately 10,000 square feet of work space, exclusive of corridors.

FACILITIES OF THE DEPARTMENT

The Department of Physical Medicine and Rehabilitation was assigned the entire first floor of the new unit—which had previously been designed for two bed and six bed wards totaling 64 beds—with two utility rooms and one day room on each wing, and one kitchen for the floor. The total bed capacity then became 584. Sixty-four of these beds are designated for ambulatory patients in the Department of Physical Medicine and Rehabilitation. Patients are transferred to these wards as a reward or for motivation, but they remain under the care of a ward physician. They have their own self governing organization. (The nursing staff is still too limited to place bed patients with special physical rehabilitation problems on these wards.) The first floor contains approximately 10,000 square feet of working space, exclusive of corridors. The entire space has been utilized, as is shown in the accompanying illustration.

One wing is assigned particularly to physical therapy; the other to occupational therapy, educational classes and prevocational testing and training. The day room on the physical therapy side is converted into a gymnasium; the other day room is used for clinics, variously scheduled meetings, recreation and as an overflow gymnasium or for occupational therapy. Two of the six bed wards on each wing are converted into offices and class rooms by the use of steel and glass removable partitions.

The physiatrist, who is chief of Physical Medicine and Rehabilitation, has an office with an adjoining examining room. There are smaller offices for the section supervisors and one for use of the counsellor from the State Department of Education, Division of Vocational Rehabilitation. Since all department records are kept in the staff room, the physical and occupational therapists do their charting together at a regularly scheduled hour every day. This further coordinates the work of the two sections and increases each therapist's understanding of the work of the other section. The physiatrist can easily hold joint staff meetings whenever indicated while the group is already regularly assembled.

Class rooms are used by the occupational therapists for handwriting classes; by the speech therapists for speech therapy, for lip reading and for making audiograms, and by the commercial instructor for typing and other commercial courses. The psychiatrists occasionally use a room for group work, as does the mental hygienist employed and assigned full time by the State Commission on Alcoholism (which is also conducting a study in the hospital).

The other wards have become treatment rooms. The entire department is equipped as completely as possible with every type of modern physical and occupational therapy equipment necessary for well rounded treatment as well as for teaching purposes. Two utility rooms are the occupational therapy preparation room and a photography laboratory and dark room; two rooms in the physical therapy wing contain the Hubbard tank and whirlpools. The bathrooms on either side are large, with the toilet facilities separated from the lavatories, showers and tub by a solid partition with an adjoining inner door. The bathtub on the physical therapy side is used for full tub hydrogalvanic baths. The patients are taught to wash their elastic bandages and the amputees their stump socks in the lavatories of that room. The occupational therapists teach shaving and shoe shining in the other lavatory. Self care toilet activities are taught in the two bathrooms by the male therapists, assisted by the department orderlies. The kitchen was turned into a brace and prosthetic shop where all adjustments, or even assembly, of braces or prostheses can be made.

Hospital patients are referred to the physiatrist by the ward or attending physicians. The ward physicians rotate sick call in the outpatient clinic held for the domiciliary members and refer patients from there. Special consultation forms have been provided for all department referrals. Every referred patient is assigned a physical medicine and rehabilitation department number in sequence as he is referred, and he maintains that number if he is readmitted to the department. A special symbol is added for each readmission. This numerical system makes it possible to know the total number of patients admitted to the department or the number of readmissions of any patient at a given time. It serves as an accurate statistical record which is always current.

The physiatrist assumes the full responsibility for writing prescriptions for all tests and treatment given in the Department of Physical Medicine and Rehabilitation. The hospital chart is reviewed. The physician examines the patient in the department whenever possible, on the ward when necessary. Examination in the department is preferred because gym trunks are provided. When the patient is dressed in these, the over-all body mechanics, posture, stance and gait can be more readily evaluated in terms of the whole man in addition to the specific physical complaint for which the patient has been referred. New patients can also be tested immediately for standing or walking in the parallel bars. All patients are questioned about previous occupations, work record and education in addition to the physical history. The social history is noted. The physical and occupational therapy supervisors are present at the time of the initial evaluation.

Many patients are referred originally for tests to assist in completing the diagnosis as well as for any treatment the physiatrist considers to be indicated. Other patients are referred as psychoneurotics. Many of these, as well as others without physical complaints, may be referred particularly for a prevocational evaluation or for possible reemployment through the State Department of Education, Division of Vocational Rehabilitation. The physiatrist most often additionally prescribes physical relaxation, heavy exercise or work therapy—or relaxing, stimulating or projective[3] occupational therapy for the psychoneurotic patients—as seems indicated by the psychiatrist's report. (Psychotic patients are transferred to other state or Veterans Administration neuropsychiatric hospitals.)

On June 30, 1949 the department staff included 10 physical therapists, 1 physical therapy technician, 7 occupational therapists, a part time speech therapist and a part time teacher of typing and other commercial subjects, 1 file clerk, 1 typist and 1 stenographer. The therapists are all graduates of schools approved by the American Medical Association.

TESTS AND TREATMENT

Therapists spend approximately one third of their time in making tests—particularly those which assist the physicians to confirm either a diagnosis or a prognosis. Manual muscle tests are routine when a patient has any muscle weakness irrespective of the cause. Electrical muscle tests are done to assist in confirming a neurological involvement and the degree of the reaction to degeneration. Range of motion is measured with a goniometer when there is any limitation of joint motion. Posture evaluation is recorded; hamstring shortening or expansion is measured on all patients referred for treatment of various respiratory difficulties. Oscillometric readings, skin temperatures and Gibbon and Landis tests are routine for any previously diagnosed or suspected peripheral vascular disease. When the neurosurgeon decides that a test sympathetic block is indicated, the anesthetist performs this procedure in the thermally controlled room in the department. A therapist does the appropriate tests before, during and after the block. All this group of tests are done by the physical therapists. The occupational therapists fill out an avocational questionnaire on every patient and do the first test in "Activities of Daily Living."

The special tests for "Activities of Daily Living" is routine for every patient with any disability. The patient is tested to see whether he is able to turn over in bed, handle all articles about his bed, handle all other common utilities, dress, feed and shave himself, get from the bed to either a sitting or standing position, and return. He is tested to see whether he can walk on level ground (and for what distances), climb curbs and ramps and finally climb stairs of various tread heights (with and without hand rails); also tested is his ability to get into automobiles and onto buses or other public conveyances and to cross streets with traffic lights. When canes, crutches, braces, prostheses or any other appliances are needed, he is instructed in their application and use and is graded accordingly. He is graded for what he can do initially and is then put in special training classes to become more proficient in the performance of these activities or to learn to do the things he is unable to do. Training in each activity continues and is graded separately until it appears that the maximum results have been obtained and that the patient is as physically independent as is possible within the limits of his physical and mental capacities. All grades are recorded on the patient's individual chart of activities of daily living.

This is functional treatment and training and it is done by both physical and occupational therapists. The occupational therapists conduct handwriting classes for all persons who need to relearn or improve their writing or to change their handedness. Occupational therapists also have shaving classes and teach all other activities that particularly relate to the use of the hands. The physical therapists assume the responsibility for the training in bed activities, sitting, standing, walking and traveling. This part of the program consumes about one third of the therapists' time and one third of the patients' total department prescription. Seldom is it sufficient for the total treatment of a patient, since definitive physical medicine procedures usually facilitate the functional recovery.[2b]

Definitive Treatment.—Definitive treatment in physical therapy includes specific muscle reeducation and therapeutic exercises (passive, active, active assistive and resistive) assisted by massage and various applications of heat, cold, light, water and electricity. Definitive treatment in occupational therapy uses projects for: increase of muscle strength, coordination or range of joint motion; prevocational testing, reconditioning, prevention of deconditioning and development of work tolerance; relaxation, stimulation or socialization, and creative art work—which may be of diagnostic assistance to the psychiatrist or may in itself be psychotherapy.[4]

Here as in any other well equipped Department of Physical Medicine there are at least 140 treatment possibilities in physical therapy, either as a single treatment or in combination. A similar number of treatment possibilities is available in occupational therapy—particularly since the physiatrist writes prescriptions according to the Licht nomenclature.[5] (The variety of treatment possibilities indicates the reason why physical medicine can serve all other fields of medicine and surgery.)

---

[3] Projective occupational therapy employs those arts which are unhampered by established technics and which allow for freedom of expression (such as finger or any other painting, clay or plasticene® modeling). It may include those arts with which the patient has no previous experience or preconceived ideas of technics.

[4] Hall, V. R.: Psychological Implications of Physical Medicine, Occup. Therapy **28**: 21-30 (Feb.) 1949. Harris, R. L.; Buvens, A. E., and Irwin, I.: Ceramics as Occupational Therapy for Patients with Suicidal Tendencies, ibid. **28**: 231-244 (June) 1949.

[5] Licht, S.: The Objectives of Occupational Therapy, Occup. Therapy **26**: 17-22 (Feb.) 1947.

Just as specific definitive treatment usually is prescribed to facilitate functional training for patients with chronic disabilities, capabilities of patients recovering from acute illness or injury are checked and functional training is instituted whenever indicated. For instance, treatment to regain motion in a leg after a hip fracture would be of little value if the patient were not taught to walk and climb stairs.

Definitive treatments prescribed for chronic disability are varied and may include one or several specific treatment combinations in accordance with the underlying pathologic, physiologic and anatomic conditions and the results of the diagnostic tests made in the department. Usually some form of both physical and occupational therapy is prescribed.

Much definitive treatment must be given individually, but definitive and functional treatment is done in groups whenever possible. Patients are grouped according to disabilities. Stimulation, motivation, learning by observation and even competition often speed accomplishment. Patients with cardiac diseases are often grouped for graded exercises, as are patients with asthma or those with various other conditions who need to be taught physical relaxation. Patients with arthritis have a daily group exercise class, irrespective of any other individual prescription. In such classes individual patients are encouraged to take turns in giving the exercise commands for the group while the therapist goes from patient to patient, giving individual supervision. The hemiplegia classes are conducted similarly, and the patients enjoy mat and wand drills or reciprocal motion exercises done to music in this fashion. The patients enjoy their fellow patient's instructions—sometimes laughing heartily at or with the instructor—and work with more individual concentration, pending the time when it will be their turn to instruct.

Functional Activities.—Functional activities are taught in similar groups: Class A includes all activities in bed, getting from the bed to a chair or to a standing position and all the hand activities. Class B includes all activities that have to do with the accomplishment of independent walking on level ground. Class C includes all "climbing" activities and the final training in traveling outside the hospital. Patients are divided by disabilities into three main groups, and the classes are subdivided accordingly. The hemiplegic patients work together; those with other neurological disabilities form a second large group, and the amputees are the third group, subdivided into units for preprosthetic and postprosthetic training.

One occupational therapist and one physical therapist work together in the class A activities, giving an hour daily to each disability group. This is done in one large treatment room containing eight beds. The occupational therapist has an additional class each day for more practice in hand activities. This class is continued until hand training is completed, even though the patient is walking. Class B and class C work is conducted by the physical therapists in the gymnasium, in the halls and on the stairways. Patients usually respond better to the group work and are more interested. In addition, a staff of limited size can handle more patients with efficiency.

The speech therapist has individual and group therapy for the aphasics, the stutterers and the stammerers. The aphasics constitute the largest group and average 15 to 20 at all times. Every gain in vocabulary is most gratifying to the patients, because the sense of frustration of these persons is severe, no matter how much physical restoration is accomplished. The handwriting classes are often adjunctive to speech therapy. Esophageal speech is being taught by an occupational therapist instead of by the speech therapist—for the only reason that the occupational therapist has had special training in that procedure.

The speech therapist also has had some training with the deaf and hard of hearing; she is doing routine testing and is teaching some lip reading under the supervision and prescription of the ear, nose and throat specialist who is the director of the aural rehabilitation program. This program was just getting started at the end of the first year. In order to determine the case load and treatment needs in aural rehabilitation in this hospital, it was decided that every patient referred to the Department of Physical Medicine and Rehabilitation automatically would have a hearing evaluation. Audiosweeps are now done on each patient. When a hearing loss is indicated an audiogram is done. The staff of the ear, nose and throat service examines each of these patients, treats them and orders sinus roentgenograms, if indicated. Hearing aids and training in their use will be added as quickly as possible. Addition of a soundproof room and other necessary equipment is contemplated. More personnel will be necessary later. The present speech therapist will soon be employed full time.

Educational Program.—To date the business courses are the principal part of the anticipated educational program. This educational therapy mainly is prevocational testing and training. Unless a patient is being kept in condition to return to an office position, the majority of the patients will have to complete their training in business schools. A few patients have been taught one-handed typing; one of these is a 55 year old hemiplegic who is now attending a business college under the auspices of state vocational rehabilitation. Two severely paralyzed patients now have a means of communication—as well as therapeutic exercise—by having been taught to use special machines, one a remote control typewriter and the other an electric typewriter. A third patient is just starting such training. So many patients need or want this type of educational training that the instructor will soon be employed full time.

A more complete educational program is contemplated but cannot be developed until a full time director of educational and prevocational training can be added to the staff. Courses for high school equivalency diplomas are contemplated.[6] The present photography and print shops, now under occupational therapy supervision, will be expanded; the maintenance shops on the grounds can probably be utilized more fully.[7] One patient is now in charge of the photography shop and assists an occupational therapist to make movie and still pictures of the patients and of department activities. A hospital newspaper is reported, written, mimeographed, assembled and distributed entirely by the patients. The patients cut stencils for the paper and for any other material that is mimeographed in the department. A hand printing press is being assembled; a multigraph duplicator is being renovated.

Recreation.—There is, as yet, no recreation director. The physical therapists, and particularly the occupational therapists, have combined as much of a recreation program as is possible with their other duties. As a temporary solution one afternoon a week is set aside for recreation instead of regularly scheduled treatments. Usually the occupational therapists are responsible for this program while the majority of the physical therapists are doing diagnostic tests. Indoor games and contests are conducted in the day room. In good weather croquet, volley ball, horseshoes and shuffle board are played outdoors. Three outside doors open on an area where these activities are easily accessible.

---

[6] General Educational Development Tests: High School Level, in Medical Rehabilitation Programs, VA Hospitals, Veterans Admin. Techn. Bull., TB 10A-20 (Feb. 15) 1947.

[7] Prescription for Work, United States Veterans Administration, Department of Physical Medicine, Medical Rehabilitation Service, 1946.

There are occasional evening parties in the day room on the rehabilitation wards. Patients on those wards are hosts to the nurses, the therapists and other hospital patients who are active in the Department of Physical Medicine and Rehabilitation. Dancing is the main entertainment. Music is furnished by a (volunteer) professional dance orchestra. The patients have their own committees to plan other entertainment, decorations and refreshments. The physical medicine and rehabilitation staff members sponsor and supervise the party.

A softball diamond was completed during the summer of 1949. Hospital and domiciliary patients are eligible both to play and to be spectators. Although the softball playing was managed from the veterans home and was not part of the Department of Physical Medicine and Rehabilitation, it was of great value to many patients in that department.

DISEASE OR DISABILITY CLASSIFICATION

Table 1 attempts to classify the 797 referred patients according to their disease or disability. The patients referred in the first year are shown in the admission column; those remaining under treatment at the start of the second year appear in the next column. They have been grouped and tabulated by specialties as far as is possible. It is obvious that those disabilities or diseases marked with asterisks, or totalled separately, might fall into any of the larger specialty groups, depending on the diagnosis and indicated treatment for each patient. The classification is an arbitrary one for department convenience in particular relation to disability and treatment. A patient with more than one of the diseases or disabilities included in this classification was scored for each. The additional scoring totaled 910 disabilities or diseases among the 797 patients referred: for example, several unilateral amputees had peripheral vascular disease in the remaining leg; two amputees had residuals from cerebral vascular accidents, as had some of the cardiac patients and one patient with epilepsy; some psychiatric patients had various physical disabilities. Three hundred and thirteen of the total referred patients had disabilities which made them totally or partially incapable of self care; they were referred for this training. The cause and duration of each of these conditions as well as the additional diagnoses or pathological conditions—such as diabetes, hypertension, cardiac disease, gastric ulcers or hernias—were noted by the physiatrist. That information was recorded on the individual department charts and on prescriptions written by the physiatrist for the staff of the Department of Physical Medicine and Rehabilitation.

These referrals confirm the fact that a department of Physical Medicine and Rehabilitation serves every other field of medicine and surgery. Such a department is no more a subdivision of orthopedics or of neurology than it is of psychiatry, general medicine or general surgery. It parallels all. Referrals from general surgery—particularly abdominal surgery—are lowest in this group for only one reason, a shortage of therapy staff. A choice of treatment by disabilities had to be made because of the large number of referrals. The chief of surgery and the chief of physical medicine and rehabilitation are in agreement on the importance and need for this treatment, and it is a standing referral request, pending the time when more therapists are available. When that treatment can be given here routinely, approximately one fourth of the total referrals will probably be from the general surgical service, considering how much surgical treatment for acute conditions is being constantly done in this hospital. I have previously stressed the importance of such treatment [8] and continue to be of the same opinion.

TABLE 1—*Classification of Patients Referred to Department of Physical Medicine and Rehabilitation*

Disabilities or Disease Syndromes Referred for Treatment 6/1/48 to 7/1/49	Admissions 6/1/48 to 7/1/49	Patients Still Under Treatment at Start of Second Year	Total Disabilities, Divided by Specialties, When Possible		
Hemiplegia*	77	18	77	Total neurological 209	77
Multiple sclerosis	22	13	All other neurological 132		
Spinal cord injury	6	3			
Parkinson's disease	18	2			
Amyotrophic lateral sclerosis	9	2			
Spinal cord disease including platybasia	9	6			
Progressive muscular atrophy and dystrophy	3	1			
Jamaica ginger paralysis	2	0			
Tabes	6	2			209
Brain injury	9	2			
Postmeningitic syndrome	3	3			
Poliomyelitis	2	2			
Guillain Barre syndrome	2	0			
Epilepsy	7	1			
Peripheral nerve injury	20	4			
Cerebral palsy	2	0			
All other neurological	12	5			
Arthritis*	82	16	82	Ortho. 226	
Orthopedic (general)	116	26	General ortho 144		
Feet	25	5			226
Dupuytren's contracture	3	1			
Shoulders* } Orthopedic and neurological	37	3	Ortho or neuro or both 99		
Back* } Orthopedic and neurological	58	9			
Intervertebral disk	4	0			99
Amputation*	49	25	49		49
Peripheral vascular disease*	57	26	57		57
Medical (general)	36	2	General medical 120	General medical 233	
Cardiac disease	17	4			
Tuberculosis	48	14			
Asthma, bronchitis etc	14	2			
Streptomycin vertigo	5	1			
Dermatologic*	21	5	21		233
Psychiatric*	92	6	92		
Surgical (general)	19	7	General surgery 25		
Chest surgery, tuberculous and nontuberculous	3	2			
Esophageal speech	3	1			25
Blind*	6	0	6		6
Deaf*	6	5	6		6
Total disabilities	910	212			
Total patients referred	797				

* Those disabilities or diseases marked with asterisks or totalled separately might fall into any of the larger specialty groups, depending on the diagnosis and indicated treatment for each patient.

This classification clearly indicates that patients cannot be separated by specialties if they are to be rehabilitated. Other classifications would no doubt give the same indications. Disability becomes the common denominator. It is the basic concept of physical rehabilitation and total rehabilitation that a patient must learn to live with, and not for, his disability if he is again to become a well adjusted person to any partial or total degree; medical responsibility for each patient is not over when the definitive medical and surgical treatment is complete and the acute phase of an illness has been passed. One must consider the total man and his psychiatric, social and economic adjustment as well as his physical readjustment or retraining.[9]

---

[8] Covalt, N. K. Bed Exercises, Arch. Phys. Med. **28:** 18-29 (Jan.) 1947. Early Exercise for the Convalescent Patient. Modern Program of Bed Exercise Prevents Deformities Due to Illness or Injury, Improves Morale, and Hastens Recovery, Am. J. Nursing **47:** 544-546 (Aug.) 1947.

These patients were referred for preventative treatment, for diagnostic and prognostic tests and for definitive and functional treatment. Treatment was given during acute illness, in the convalescent period and in chronic illness or that in which the residual chronic disability had oftentimes persisted for many months or years. Preventative medicine included such procedures as correct bed positioning to prevent deformities in the early stage of acute illness and early training in self care to prevent physical helplessness after an acute illness—particularly an illness which of itself might be considered to be chronic or progressive. It is apparent that there is no disease or disability that cannot benefit during some phase by some form of physical medicine.

TREATMENT AND RESULTS

Of the 797 referred patients, 27 did not need treatment, 313 (including 64 belonging to the group of chronically ill, aged or infirm) needed functional training, 434 needed definitive treatment only and 23 required only vocational placement. There were many patients among the veteran group already in the hospital when the program started who needed functional training—including 41 hemiplegics and 17 amputees, not one of whom could walk. Many patients among both the chronically ill and the veteran groups had been physically dependent for two to five years and longer. The State Commission admitted a total of 129 patients in the first year. All of these were evaluated by the Physical Medicine and Rehabilitation Department.

During the first year 23 patients had acute disabilities after orthopedic procedures. In the remaining 299 patients of the 313 requiring functional training the disabilities were of relatively long duration with the exception of a few recent cerebral vascular accidents and a few recent amputations. Of the entire 313, some were bed patients and others were confined to wheelchairs. Many were unable to feed, dress and bathe themselves or to handle any other ordinary utilities. The few who could walk were insecure or unable to take more than a few steps on level ground, even with crutches or canes. Activities of Daily Living tests were made on these patients immediately after referral, and functional training was instituted. This was started at the bedside, if necessary.

Fifty-two patients with disabilities absolutely refused treatment; some refused to even try the Activities of Daily Living test. The first several refusals were not accepted. Repeated attempts were made to motivate each patient, and the physiatrist insisted that repeated attempts be made up to a minimum of three months' trial—unless it became absolutely obvious before that time that nothing could be done. The psychiatrist interviewed each of these persons, as they have attempted to interview all other patients. Psychotherapy was attempted whenever feasible. The referring physician and the nursing staff added their encouragement. Some patients in this group signed themselves out of the hospital shortly after admission. Many of the 52 were in the younger age group.

Eight other patients referred for evaluation were too senile or deteriorated to receive any treatment. In 23 others treatment was discontinued after a minimum trial treatment of no less than three months; for the majority treatment was continued six to 10 months. Two patients voluntarily requested resumption of treatment. The remainder are almost all in the hospital. About every three months the ward physician requests that the department try again to teach them self care activities. This is always done—so far without results.

The group of 23 patients represents the only complete failures among 253 patients who have actually had training in functional self care. The majority of these have learned to walk, climb stairs and travel outside the hospital. A small percentage will always be wheelchair patients and are considered to have reached their maximum goal in physical rehabilitation. Eighty-one of the group were still under training at the start of the second year, but complete physical independence was considered to be possible for all of them.

LENGTH OF TREATMENT PERIOD

There has been an opportunity to spend unlimited time on many of these patients, and that time has been invaluable. As an example, 49 amputees were referred to the department, including the 17 who were here when the program started. (One of the 17 died shortly after the department opened.) Thirty-three patients have been fitted with prostheses. Except for two, to my knowledge all are (or should be) walking today. One amputee, aged 46, had to be transferred to a psychiatric hospital eleven months after the department opened; the second, fully trained, died of a coronary attack two months after discharge. He had no evidence of any cardiac disease while in the hospital. Necessary (and frequent) changes in the prostheses, particularly the sockets in relation to stump shrinkage, were made in the prosthetic shop so that patients were discharged from the department with well fitting prostheses, with a knowledge that changes could still occur and with arrangements made for further revisions or changes. It took six to nine months to train some of these persons. Most of these, as well as the 15 who did not receive prostheses, had three months' preliminary training. Three of the 15 were mentally incapacitated; the other 12 lacked the motivation, and particularly the motor skills, necessary to use a prosthesis. This latter group, almost without exception, were made physically independent either in wheelchairs (if bilateral amputees) or by the use of crutches. The majority of all the amputees were over 60 years of age.

Braces were furnished to 45 patients, the majority of these with residuals of a hemiplegia. Of 77 such patients admitted, the majority are now walking. Approximately 50 per cent of patients with this disability required braces.

It has been learned that one should not make a final evaluation of a patient's status and decide that physical rehabilitation is impossible until he has been offered a minimum of three months' training. Judgments made at the time of the first examination or in the first week must often be changed. It may take three months to motivate a patient, to overcome his "mental atrophy of disuse,"[10] or to differentiate between mental disuse atrophy and mental deterioration. He must be convinced that it is worth while to make the effort. Fear must be overcome. Fear of the patient may be due to previous warnings concerning the danger of any physical activity or may relate to the security and the attention he will receive if he remains in bed. Helplessness can often be for secondary gains (the advantage the patient derives from his illness).[11] Psychiatric evaluation and guidance is most helpful during this period. It is often equally necessary for the occasional patient who starts retraining with enthusiasm and quickly reaches a plateau without having attained the maximum accomplishments which appear physically possible.

---

[9] Rusk, H. A.: The Broadening Horizons of Rehabilitation and Physical Medicine, Arch. Phys. Med. **30**: 26-28 (Jan.) 1949; Dynamic Therapeutics in Chronic Disease, Postgrad. Med. **5**: 278-287 (April) 1949.

[10] Mental atrophy or disuse occurs when a patient has had no mental stimulation or has made no effort to concentrate or to think but has been content to placidly vegetate.

A clearcut statistical report of discharges cannot be made for many reasons. Many veteran patients continue to live in the hospital or domiciliary because they have no other home. Some of these with disabilities, who have become capable of all the activities of daily living, are continued on partial treatment or are rechecked in the Department of Physical Medicine and Rehabilitation to prevent physical deconditioning and to maintain interest (particularly in occupational therapy).

STATUS OF PATIENTS AT START OF SECOND YEAR

Of the 797 patients referred, 244 remained under treatment at the start of the second year, including the 81 with disabilities. Some of the 244 represent readmissions, particularly among the veterans—since some reasons for readmissions are peculiar to this institution. Veteran patients are discharged from the home and hospital for infringement of administrative rules. Usually, they can be reinstated within 60 to 90 days. Many veterans leave against medical advice; others in the home just leave—usually to try to be employed. If a job is not available they often return because legally this can be their home.

TABLE 2.—*Partial Recapitulation of Discharges*

Evaluation, no treatment indicated	27
Physical rehabilitation considered possible, treatment refused	52
Treatment discontinued for other reasons, usually medical complications	69
Trial treatment, physical rehabilitation, failed (three of group died)	23
Total deaths after treatment discontinued	24
Transferred to other hospitals (usually tuberculosis sanatoriums or psychiatric hospitals)	24
Discharged without informing the Department of Physical Medicine and Rehabilitation:	
Improved or (possibly) maximum results obtained	162
Unimproved or treatment incomplete	134

In the early months of the program some patients were discharged by the ward physicians before treatment in the Department of Physical Medicine and Rehabilitation was complete because those physicians, like many others, were accustomed to discharge all patients as soon as definitive medical or surgical care was complete.[12] These physicians had to become conscious of total care—including physical rehabilitation—with total rehabilitation as the ultimate goal. This was more often true of patients requiring definitive physical medicine than of patients requiring physical rehabilitation.

A maximum of 172 patients representing 216 disabilities in my opinion have achieved the maximum of self care. There were failures with 23 patients, approximately 15.5 per cent of the 290 with chronic disabilities; there were 43 per cent failures if the 52 patients who refused treatment are also taken into consideration. There were no failures among the persons with acute disabilities, which included those with early cerebral vascular accidents and amputations in addition to the 23 patients with orthopedic disabilities (table 2).

SUMMARY

I have given a general outline of the purpose and organization, personnel and physical facilities of a Department of Physical Medicine and Rehabilitation which has been established as part of a study concerning treatment of the chronically ill in the state of Connecticut. The types of patients referred to the department are discussed in general.

The 797 referred patients have been classified as far as is possible by disabilities, which appear to be the common denominator in planning a program of physical and total rehabilitation. A total program considers the physical, psychological, social and economic adjustments of each person in order to utilize his remaining capabilities to the greatest extent, regardless of a residual physical disability.

It would appear from this report that definitive and functional physical medicine are needed concomitantly and that such treatment, planned or started at the onset of an acute illness, can prevent the development of chronic disabilities which lead to helplessness in the vast majority of cases. It is an excellent form of preventative medicine. The association of patients with acute illness which could result in disabilities and patients with chronic illness has served as a motivating factor for those in each group.

In this study the number of chronic invalids who failed to accomplish any part of functional self care activities is approximately 15 per cent. The majority have all learned to walk with at least a fair degree of proficiency. Age has not been a determining factor. Adequate time for training has been important. A minimum of three months has been considered most necessary. Physical rehabilitation would have been impossible for many persons if all efforts to aid them had been discontinued before the end of this time. Six months to a year (or more) has been taken to complete training for some of these patients. The psychological factor, particularly relating to fear, secondary gains or motivation, has to be especially evaluated during the early period of rehabilitation. The time that should be spent on each patient in relation to the law of diminishing returns can only be evaluated after much more study. Since adequate time and hospital facilities have been available, my associates and I are impressed with the total number of patients with long-standing disabilities who can again be made physically independent. The lack of future economic productivity of some of these persons must be balanced against the time that others formerly consumed in their care.

A department of physical medicine and rehabilitation can offer service to every other field of medicine and surgery. There appears to be no disease or injury at some stage of which the patient cannot benefit by treatment in such a department. The many facets and ramifications of such a department make it the coordinating center for the entire program of rehabilitation, but every member of the medical staff and all ancillary services—both inside and outside the hospital—must be part of the team. A sound medical diagnosis and treatment is the foundation of any part of rehabilitation, but it is the whole patient and not his disease which is to be rehabilitated.

---

[11] Alexander, F.: Fundamentals of Psychoanalysis, New York, W. W. Norton & Company, Inc., 1948, p. 212.

[12] This is a rather common situation that physiatrists are facing in almost every Department of Physical Medicine and Rehabilitation.

Special Article

LICENSURE REQUIREMENTS FOR THE PRACTICE OF PATHOLOGY

GEORGE E. HALL
Chicago

In considering the legal requirements of the practice of pathology, two questions naturally arise. First, does a person who carries out the activities of a pathologist really practice medicine? Second, if he does, does he do it in such a way that he brings himself within the purview of the medical practice act of his state so that he must be licensed to practice medicine?

What is pathology and what does a pathologist do? Most dictionary definitions of pathology define it as a branch of medicine which treats of the structural and functional changes caused by diseases. In states having basic science acts, pathology is named as one of the basic sciences along with bacteriology, anatomy and chemistry. None of the last-mentioned sciences, however, are defined as being branches of medicine. They are all defined as sciences, i. e., the science which treats of bacteria, the science of the structure of the body, and the science which treats of the elements and atomic relations of matter. Why this difference? There are, it seems to me, two meanings of pathology just as there are two generally accepted meanings of the term practice of medicine. In its narrow sense, medicine, or the practice of medicine, is the art or science of healing diseases by the administration of internal remedies. In its broader sense, the practice of medicine means the whole field of curing diseases and includes the use of drugs or surgery or any other means which might be necessary. So it is with pathology. In a narrow sense pathology has a purely academic meaning. It is just one of the subjects taught to medical students, just one of the basic sciences. In this sense it is certainly not the practice of medicine. In its broader meaning it is the practical application of a science in such a way that physicians and surgeons are enabled more adequately to determine on the course of treatment they will follow with regard to a particular patient. Even in this broader sense, however, there are two separate and distinct types of activity engaged in by the pathologist. Suppose, for example, that all a pathologist does in a particular case is report a blood count. This is merely a mechanical procedure which a technician can do with proper training. No professional decision or opinion is given. I do not feel that such an act is the practice of medicine, but it is one phase of the practice of pathology. Suppose, however, that the pathologist not only reports the blood count but states that in his opinion, based on an examination of the blood and an examination of a frozen section of tissue from the spleen, a particular person is suffering from leukemia. Such conduct would obviously seem to constitute the practice of medicine. What is the difference? In the latter case the pathologist not only performed a pathological technic, he used the knowledge gained from study and experience to furnish an opinion, a diagnosis if you please, concerning a particular patient and such diagnosis formed the basis for medical treatment. I therefore believe that the practice of pathology is the practice of medicine when pathology is defined in its broader sense and when the acts of the pathologist consist of the rendering of an opinion or diagnosis based on study and experience at the request of a physician or surgeon and with reference to the treatment of a particular person. The crux of the situation is the diagnosis. It is the diagnosis which lifts the pathologist out of the classification of a highly trained and competent laboratory worker and places him in the field of the medical practitioner. It is the diagnosis, made at the request of the physician in charge of a case, which imparts to the pathologist a share of the physician-patient relationship in the same way that a fellow surgeon or internist or radiologist might be called on for assistance. That the practice of pathology in this way is the practice of medicine is not my personal opinion alone. It is also the opinion of the House of Delegates of the American Medical Association and has been since as long ago as 1943.

Now, bearing in mind that when a pathologist diagnoses he practices medicine, do the medical practice acts require licensure of one who diagnoses disease? Each medical practice act contains some phraseology which indicates the conduct which is included as the practice of medicine in that state. In Louisiana and Oregon there can be no doubt but that a pathologist must obtain a license to practice medicine. In Louisiana the definition of the practice of medicine includes the examining of a "person or material from such person" for the purpose of diagnosing, treating and curing. In Oregon the word diagnose is defined to mean "to examine another person in any manner," and it is further provided that "it shall not be necessary that the examination be made in the presence of such other person, it may be made on information supplied either directly or indirectly by such other person." Twenty-two other states (Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Kentucky, Maine, Michigan, New Jersey, New Mexico, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Utah and Virginia) and the District of Columbia include the word diagnosis, prognosis or examination within their definitions of the practice of medicine. Thus a pathologist who does diagnose must be licensed in those states. In Arkansas, Massachusetts, Nebraska, Nevada and Tennessee the medical practice act makes it unlawful to practice medicine or any of its branches without a license to practice medicine. If one accepts the definition of pathology as a branch of medicine, then pathologists must also be licensed in these five states. Thus there are 29 states in which, I believe, a pathologist practicing pathology in the broad sense and as an aid to medical treatment must be licensed to practice medicine.

This leaves 19 states in which the medical practice acts do not use the word diagnose or examine, or any similar expression in their definition of the practice of medicine. Of these 19 states, however, 17 (Indiana, Iowa, Kansas, Maryland, Minnesota, Montana, Missouri, New Hampshire, North Dakota, Oklahoma, South Dakota, Texas, Vermont, Washington, West Virginia, Wisconsin and Wyoming) contain provisions requiring the licensure of persons who hold themselves out or publicly profess to be physicians or who advertise that they are authorized to practice or who call themselves M.D.'s. Thus if a pathologist signs himself M.D. or Doctor and carries a listing in the classified directory under Physicians and Surgeons and lets himself be publicly referred to as a physician, I think he must be licensed in those states. I do not mean to imply, however, that if he in no way holds himself out as a

---

Staff Associate, Bureau of Legal Medicine and Legislation, American Medical Association.

Read at the Annual Meeting of the College of American Pathologists, Chicago, Oct. 16, 1950.

practitioner of medicine he therefore need not be licensed merely because the medical practice act omits the word diagnosis from its definition of what constitutes medical practice. In most cases, such definitions were formulated many years ago and were merely intended as a general description of the usual scope of activity of a doctor. No need for a detailed and precise definition existed. When such definitions are subjected to judicial scrutiny, the omission of the word diagnosis is not necessarily important. In Iowa,[1] for example, one of the 17 states just mentioned, the Supreme Court has said that manifestly the first duty of a physician to his patient is to diagnose his ailment and that one who publicly professes to be able to diagnose human ailments and to prescribe treatment therefor is engaged in the practice of medicine within the meaning of the law. And in Minnesota,[2] another of the 17 states, the Supreme Court said that the science of diagnosing human diseases and ailments has come to be a distinct branch of the medical profession. The diagnostician limits his efforts to the discovery of the disease or ailment, leaving treatment to some other physician or surgeon. A physician who thus applies his learning and energies in the diagnosis of disease, the Minnesota court concluded, is engaged in the practice of medicine even though he prescribes no drugs and administers no specific treatment. Supreme Court decisions in Indiana,[3] Kansas,[4] Missouri [5] and Tennessee [6] also emphasize diagnosis and examination as being integral parts of the practice of medicine.

This leaves two states (Alabama and Mississippi). In these two states the medical practice act does not specifically require licensure of those who merely hold themselves out as practitioners. It does not specifically require licensure for practicing any branches of medicine in addition to medicine itself, as do medical practice acts of Massachusetts, Nebraska and of the other states. It does not use the word diagnose. A practitioner is defined as one who prescribes for treatment or who treats or offers to treat. Here also, however, one must not jump to the conclusion that a pathologist need not be licensed. The definition is still subject to judicial interpretation, and the courts of both of these states have, in fact, already considered the problem. The Supreme Court of Alabama [7] has said that, in common parlance, treatment is the broad term covering all the steps taken to effect a cure of the injury or disease. It includes examination and diagnosis as well as the application of remedies. The Supreme Court of Mississippi [8] has held that a person who looks at people and tells them their physical ailments and prescribes or sells medicines on such diagnosis is engaged in the practice of medicine regardless of the source from which he claims the power to diagnose.

To recapitulate, the definitions of the practice of medicine found in the medical practice acts of 29 states are sufficient, in and of themselves, to require the practicing pathologist to obtain a license from the medical examining board. In the other 19 states, although an apparent doubt might exist concerning the need for licensure because of the absence of a sufficiently detailed statutory definition of medical practice, such doubt may be removed by a judicial decision construing the existing definition. In the eight states in which such decisions already exist, it is clear that diagnosis is an essential element of medical practice and that practicing pathologists must be licensed. In my opinion these decisions are well reasoned, and I have little doubt but that they will be followed in the other 11 states when the question is raised.

---

[1] State v. Hughey, 226 N.W. 371.
[2] State v. Ralph, 167 N.W. 553.
[3] Fowler v. Norways Sanitorium, 42 N.E. (2d) 415.
[4] Underwood v. Scott, 23 P 942.
[5] Hughes v. State Board of Health, 159 S.W. (2d) 277.
[6] O'Neil v. State, 90 S.W. 627.
[7] Hester v. Ford, 130 So. 203.
[8] Redmond v. State, 118 So. 360.

Clinical Notes, Suggestions and New Instruments

PHLEGMASIA CERULEA DOLENS

Massive Venous Thrombosis in an Extremity Associated with Shock

SAMUEL PERLOW, M.D.
Chicago

Phlegmasia cerulea dolens, or "blue phlebitis," is an acute fulminating form of deep venous thrombosis first described by Trémolières and VéRan [1] in 1929. Clinically there is sudden severe pain in a part of an extremity which quickly spreads to involve the whole limb. This is associated with pronounced edema of the foot and leg and later of the thigh. The most striking change is the severe cyanosis and the purpuric areas and petechiae which develop early and produce a most alarming picture. The limb becomes numb and cold, and the peripheral pulses disappear. Associated with these local changes there is rapid development of circulatory collapse and the clinical picture of shock. In the severer cases death results. In the less severely affected patients who survive, the disease follows the usual course of iliofemoral venous thrombosis with gradual disappearance of the edema and the purpuric areas and return of the arterial pulsations, sensation and warmth to the extremity.

In 1941 my associates and I [2] produced a similar condition in experimental animals. Extensive venous thrombosis of a hindleg was produced by ligation of the major veins and then intravenous injection of a carbon suspension in a retrograde fashion. In each instance massive edema and purplish discoloration of the extremity developed along with tachycardia, progressive drop in blood pressure and hemoconcentration. Extreme shock due to fluid loss and death followed in 87 per cent of our experimental animals. The increase in weight of the edematous hindquarter over the contralateral one varied between 4 and 6.1 per cent of the total body weight and was equal to 50 to 75 per cent of the calculated blood volume. Zimmermann and de Takats [3] have shown that such edema fluid may have a protein content of 1.25 to 3.4 per cent.

Muscle biopsies from the edematous extremity revealed early a distention of the capillaries and the presence of edema fluid in their vicinity and later thrombosed small and large veins along with hemorrhage between the muscle fibers and in the areolar and subcutaneous tissue. Postmortem examination showed that almost all the major and collateral veins in the extremity were thrombosed. The suprarenal glands revealed varying degrees of hyperplasia and microscopic hemorrhages in the zona fasciculata. There was pronounced dilatation of the central veins and sinusoids of the liver and occasionally dilatation of the capillaries of the lungs and of the intestinal mucosa.

From the Department of Surgery, Michael Reese Hospital.

[1] Trémolières, F., and VéRan, P.: Syndrome d'oblitération artérielle du membre inférieur droit apparu au cours d'une phlébite superficielle et profonde avec embolies pulmonaires: Effet thérapeutique de l'acétylcholine, Bull. méd., Paris **43:** 1101 (Oct. 19) 1929.

[2] Perlow, S.; Killian, S. T.; Katz, L. N., and Asher, R.: Shock Following Venous Occlusion of a Leg, Am. J. Physiol. **134:** 755 (Nov.) 1941.

[3] Zimmermann, L. M., and de Takáts, G.: The Mechanism of Thrombophlebitic Edema, Arch. Surg. **23:** 937 (Dec.) 1931.

In follow-up experiments[4] we found that limitation of the loss of fluid into the involved extremity by preliminary administration of desoxycorticosterone acetate or mechanical limitation of the edema of the limb by a plaster cast prevented shock in most instances and the animal survived Aside from the less pronounced edema of the tissues of the extremity the other changes were essentially the same Our experiments also indicated that the development of shock following venous thrombosis depended not so much on the amount of the plasma fluid loss but rather on the rate at which it is lost Some of our experimental animals survived when the fluid loss into the tissues was slow even when the amount lost was as great as in those animals that died of shock

These experiments illustrated that an extremely large amount of fluid and blood can be lost into an extremity when its venous channels are almost completely occluded and may be sufficient to result in shock and death It seemed to us that on rare occasions extensive thrombosis of the veins of an extremity in man might lead to death in a like manner

Since our original experiments we have seen a number of patients with pronounced edema of an extremity following deep vein thrombosis In all of those patients the edema developed slowly, over a period of several days, and, although there was mild hemoconcentration in a small number, no signs of shock developed, which indicated again that gradual fluid loss by edema does not produce shock Recently, however, we observed a patient with a clinical picture which was similar to that seen in our experimental animals

REPORT OF CASE

J K, a 40 year old woman, was admitted to Franklin Boulevard Hospital on the service of Dr S Berger on Feb 28, 1949, because of bloody diarrhea of several weeks' duration A diagnosis of amebiasis was made after a complete physical and laboratory examination, and she was given specific therapy Improvement was slow

On March 25, one month after her admission to the hospital, a sudden severe pain developed in the left leg and thigh which was quickly followed by massive edema of the extremity to the groin and the development of extensive purpuric areas and numerous petechiae throughout the extremity Associated with these local changes, a rapid thready pulse, pronounced perspiration, an anxious facies and extreme weakness developed When she was seen in consultation about four hours after the onset she seemed to be in severe shock The left lower extremity was greatly edematous to the groin, the diameter measuring about one and a half times that of the right It was cold and cyanotic and covered with extensive purpuric areas The arterial pulsations were absent in the involved limb, and the oscillometric measurements in the calf were zero Blood examinations revealed a hematocrit reading of 70 per cent Rough calculations from our measurements indicated that between 4,000 and 5,000 cc of fluid was lost into the tissues of the left lower extremity

Treatment consisted essentially of replacement of blood, plasma and fluids for the shock and lumbar sympathetic blocks to overcome the arterial spasm and the danger of gangrene Anticoagulants were not used because of the danger of bleeding from the bowel The following day the patient was greatly improved and out of shock The hematocrit reading was 38 per cent The extremity was warm, and the arterial pulsations had returned but the edema and the discoloration remained unchanged for about four days and then began to clear up fairly rapidly On April 1 the patient was taken home, the appearance of the extremity had improved, and the diarrhea was controlled

On April 11 she was admitted to the Cook County Hospital for further treatment of the amebiasis There was little residual edema of the left extremity, and the purpuric areas had almost completely disappeared On April 13 sudden massive edema of the right lower extremity associated with extensive purpuric areas developed over the whole limb and the lower right portion of the abdomen and the right buttock, along with general signs of shock She was given 1,000 cc of plasma intravenously but died three days later The left extremity, which had been involved previously, remained unchanged during this episode

Postmortem examination revealed massive thrombosis of both iliac and femoral veins, severe ulcerative colitis, brown atrophy of the heart, acute splenitis, ulcerative chloecystitis and cholelithiasis and cloudy swelling of the kidneys There was no peritonitis or extension of the inflammation of the bowel to the veins

In 1948 DeBakey and Ochsner[5] were able to find only 32 cases of "blue phlebitis" in the literature and added one case of their own Of the reported cases eight, or 25 per cent, terminated fatally Most of the patients were adults, and in only a small percentage was the condition associated with prior surgical treatment In two patients an upper extremity was involved In five of the cases reported and in our case the condition developed while the patient was being treated for some form of ulcerative colitis There is no known cause for the extremely rapid thrombosis of the veins that occurs The extensiveness and rapidity of the process seem to indicate a different pathogenesis from that of the type of thrombophlebitis usually seen DeBakey and Ochsner suggest that some unknown changes in the mechanism of blood coagulation in those patients associated with reflex arterial spasm and slowing of the blood flow may be factors in its development Postmortem studies reveal that the venous thrombosis is extensive and involves not only the major veins but the small venules Biopsy of the tissues from our experimental animals showed similar extensive involvement occurring within a few hours of the onset

In addition to the cases reviewed by DeBakey and Ochsner, we were able to find five more cases in the recent literature In a discussion of a paper on venous thrombosis in 1940 Phemister[6] described a woman with pronounced edema of an extremity who died in shock in 24 hours At autopsy a fresh thrombus was found completely blocking the common iliac vein From measurements of the limbs it was calculated that the volume of the involved extremity was about 4 liters greater than that of the other, and it seemed that the immediate cause of death was shock due to fluid loss

Dennis[7] in 1945 reported a case of acute circulatory collapse after a common femoral vein ligation for postoperative venous thrombosis which was treated successfully with blood and plasma transfusions Morgan, Allen and MacCarty[8] recently reported three cases of acute peripheral circulatory failure caused by acute venous thrombosis In the one patient who recovered they calculated that approximately 4,255 cc of fluid had been lost into the limb In this patient the peripheral arterial pulsations were absent for 40 hours and a pronounced anemia developed along with transitory azotemia, which they believe was due to absorption of extravasated blood and diminished renal blood flow during the period of peripheral circulatory failure

SUMMARY

A case of "blue phlebitis" is reported There was massive involvement of first one and then the other lower extremity with an estimated fluid loss of 4,000 to 5,000 cc into the left Blood, plasma and fluid replacement plus anesthetization of the lumbar sympathetic chain on the involved side brought about prompt improvement during the first episode

---

[4] (a) Katz, L N, Killian, S T, Asher, R, and Perlow, S The Prophylactic Action of Desoxycorticosterone in Shock Due To Massive Venous Thrombosis, Am J Physiol **137:**79 (Aug) 1942 (b) Katz, L N Shleser, I H, Asher, R and Perlow, S Prevention of Experimental Shock Following Venous Occlusion in the Dog by the Application of a Rigid Cast ibid **137·**589 (Oct) 1942

[5] DeBakey, M E, and Ochsner A Phlegmasia Cerulea Dolens and Gangrene Associated with Thrombophlebitis Case Report and Review of Literature Surgery **26:**16 (July) 1949

[6] Phemister, D B In discussion on Walter, C W The Relation of Proper Preparation of Solutions for Intravenous Therapy to Febrile Reactions, in Symposium on Fluid and Electrolyte Needs of the Surgical Patient Ann Surg **112:**617 (Oct) 1940

[7] Dennis C Disaster Following Femoral Vein Ligation for Thrombophlebitis Relief by Fasciotomy, Clinical Case of Renal Impairment Following Crush Injury, Surgery **17.**264 (Feb) 1945

[8] Morgan, E H, Allen, E V, and MacCarty, C S Acute Peripheral Circulatory Failure Caused by Acute Venous Thrombosis, Proc Staff Meet Mayo Clin **23·**425 (Sept 15) 1948

SUBCONJUNCTIVAL INJECTION OF CORTISONE IN IRITIS

RAPHAEL KOFF, M.D.
SOL ROME, M.D.
RICHARD KASPER, M.D.
ROBERT R. COMMONS, M.D.
RICHARD BUTTON, M.D.
and
PAUL STARR, M.D.
Los Angeles

The purpose of this report is to demonstrate a practical, inexpensive method of utilizing cortisone for treatment of diseases of the eye. The method avoids the undesirable side effects sometimes seen with systemic administration of pituitary adrenocorticotropic hormone (ACTH) or cortisone.

METHOD

The conjunctiva is anesthetized with tetracaine (pontocaine®) hydrochloride. A pledget of 10 per cent cocaine is then placed on the bulbar conjunctiva at the site of the injection, usually at 12:00 o'clock, 5 to 6 mm. from the upper limbus. Cortisone acetate,[1] 0.2 to 0.4 cc. (25 mg. per cubic centimeter), is then injected subconjunctivally with a 23 gage needle. Subsequent injections when indicated are administered at different sites. The procedure is repeated in 48 or 72 hours if necessary.

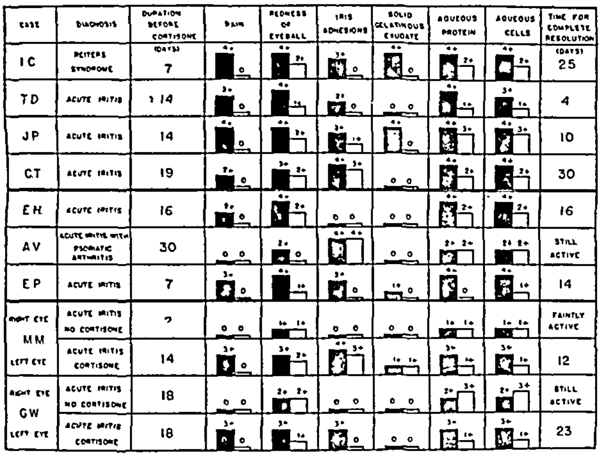


Fig. 1.—Results of subconjunctival administration of cortisone in acute iritis. The shaded portions represent the clinical gradation prior to treatment; the unshaded portions, the clinical gradation 24 hours after the cortisone injection.

RESULTS

Figure 1 shows the results in nine cases of acute or acute recurrent iritis. The shaded portions represent the condition before the cortisone administration. The unshaded portions depict the condition 24 hours later.

Seven of these nine patients had received the usual treatment, including atropine locally, typhoid vaccine injections intravenously, salicylates and heat locally without improvement prior to the local use of cortisone.

In two patients with bilateral iritis (M. M. and G. W.) the worse eye of each was treated with cortisone. The condition of the untreated eye either became worse (G. W.) or remained stationary (M. M.). The treated eye of both patients rapidly improved.

Eight of the nine patients showed remarkable improvement. In these successful cases there was a similar pattern: First, pain disappeared within four to 12 hours; second, hyperemia of the eyeball decreased markedy; third, gelatinous exudate, when present, melted away in 24 hours; fourth, newly formed iris adhesions previously unresponsive to atropine were broken away, and the pupil became widely dilated. Old organized synechiae were unaffected (figs. 2 and 3).

Only two, or at most three, injections were necessary to convert a previously refractory inflammation into a subsiding process. Atropine was used locally during resolution.

Cortisone was used subconjunctivally in six cases of chronic granulomatous uveitis. The patients had previously been treated with pituitary adrenocorticotropic hormone[2] in adequate dosage for six to 10 weeks. Three patients who did not respond to adrenocorticotropic hormone did not respond to cortisone injected locally. Three patients who responded to adrenocorticotropic hormone had recrudescence of inflammation within a few days after cessation of its administration. Subconjunctival injections of cortisone arrested the inflammation in the hormone-responsive group. Repeated injections of cortisone have been necessary at one to three week intervals to maintain remission.

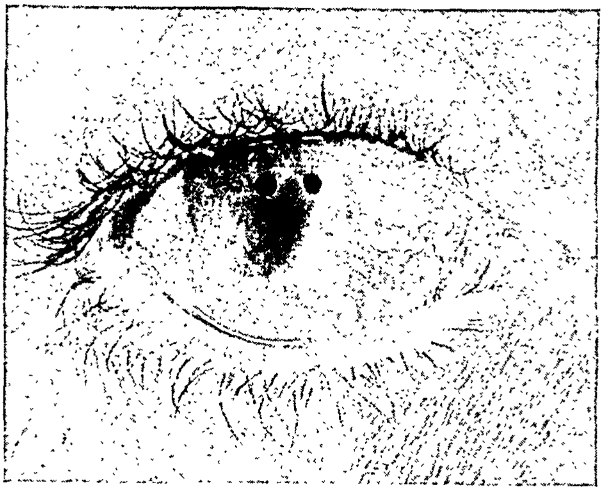


Fig. 2.—Acute iritis after one week of treatment with atropine and intravenous injections of typhoid vaccine. Note the intense hyperemia and the miotic pupil adherent to lens.

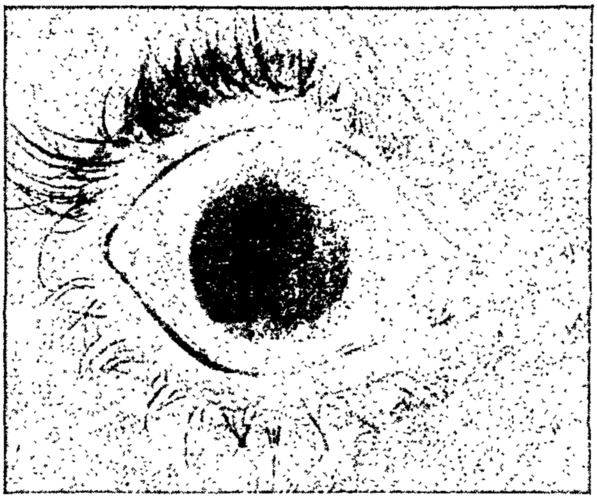


Fig. 3.—Same eye 24 hours after the first subconjunctival cortisone injection. Note the absence of hyperemia, the widely dilated pupil and the disappearance of iris adhesions.

COMMENT

The deposit of cortisone under the conjunctiva disappears gradually without leaving a visible trace. There have been no local harmful sequelae, either immediate or late, from these injections. The procedure is practically painless when done according to the technic described.

It is to be emphasized that cortisone injected subconjunctivally does not cure the iritis. However it does change the process

---

Dr. William Endres aided us by making available the cases on his service at the Los Angeles County Hospital.

From the School of Medicine, University of Southern California and from the Los Angeles County General Hospital.

[1] The preparation used was cortone,® supplied by Merck & Company, Inc. (Dr. J. M. Carlisle, Medical Director).

[2] The pituitary adrenocorticotropic hormone was supplied by the United Laboratories, Pasadena, Calif., through arrangements with Mr. Richard Bruner.

from one of an acute increasing inflammation to a low grade, easily controlled, subsiding one. Atropine or scopolamine mydriasis was used during convalescence.

Subconjunctival injection of cortisone has an effect similar to but better than successful intravenous typhoid vaccine therapy. It has these advantages over the latter: (1) The effect is much more pronounced; (2) the patient is ambulatory, not prostrated by chills and fever, and is able to continue working; (3) there are apparently no contraindications; (4) it can be used in the aged and debilitated, and (5) it is successful when typhoid vaccine administered intravenously is ineffective.

It has some advantage over systemic administration of pituitary adrenocorticotropic hormone or cortisone: 1. It is inexpensive and accessible in the small amounts used. 2. It has a repository effect. Repeated injections are not required every eight to 12 hours. The deposit remains under the conjunctiva for several days during which time it seems to remain active. In most of the cases of acute iritis only two, and in none more than three, subconjunctival injections of cortisone were required. 3. There are no systemic side effects. 4. Hospitalization and laboratory follow-up are not required

It is interesting to note that in three cases of chronic uveitis benefited by adrenocorticotropic hormone the subconjunctival injection of cortisone controlled the exacerbations which occurred after withdrawal of the other drug. Those cases of chronic uveitis unaffected by systemic administration of the pituitary hormone were likewise unaffected by local use of cortisone. It is possible that the results of the local injection of cortisone may be an indication as to whether parenteral treatment with pituitary adrenocorticotropic hormone would be effectual.

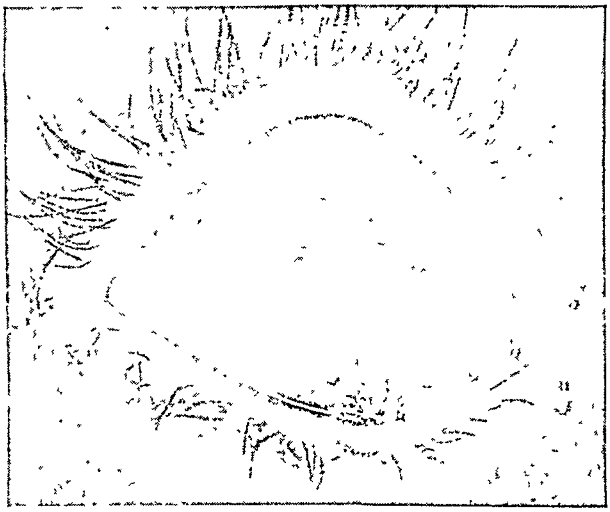


Fig. 4.—Deposit of cortisone subconjunctivally at usual site of injection.

The decrease in the hyperemia of the eyeball that results from subconjunctival injection of cortisone is unusual in that the pallor first appears over and surrounding the cortisone deposit and then spreads outward (fig. 4). This is contrary to the course of events with most other drugs injected under the bulbar conjunctiva, in which the hyperemia remains most intense at the site of the injection.

SUMMARY

A technic is described for the injection of cortisone subconjunctivally.

Nine patients with acute or acute recurrent iritis were treated with subconjunctival administration of cortisone. Eight patients were decidedly improved.

In three patients with chronic uveitis who had benefited by adrenocorticotropic hormone therapy exacerbation developed on cessation of its use, which was controlled by one injection of cortisone with remissions lasting from one to three weeks.

Three cases of chronic granulomatous uveitis unaffected by systemic adrenocorticotropic hormone were likewise unaffected by cortisone injected locally.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following report.

R. T. Stormont, M.D., *Secretary.*

THE STATUS OF BCG VACCINE

One of the most important attempts to develop an immunizing agent against tuberculosis began with the isolation and subsequent attenuation of a strain of bovine tubercle bacillus by Calmette and Guérin of France; this was tried first on calves and heifers in 1908. Oral vaccination of humans with the live attenuated organism (Bacillus Calmette-Guérin, BCG) was then undertaken. BCG vaccine has been widely used abroad, but skepticism has limited its use in this country. The Lubeck disaster of 1930, in which the orally administered vaccine cultured on egg medium produced death in 73 of 252 vaccinated infants, has been shown to have resulted from the accidental inclusion of a virulent strain. Nevertheless, doubt regarding the culture employed in this episode and the reliance placed on domestic control measures have discouraged more extensive employment of BCG vaccine in the United States. The absence of a repetition of this disaster, despite the enormous series of vaccinated infants in Europe, appears to support the contention that the vaccine is not dangerous when prepared from a properly attenuated strain.

The vaccine was administered first orally and later subcutaneously, because the parenteral route produced an allergic (immune?) response in a higher percentage of persons. It is currently administered in the United States by the multiple puncture technic, scarification or intracutaneous injection, to avoid the severer local reactions resulting from subcutaneous injection. For the same reason, a less concentrated preparation of the vaccine is employed for intracutaneous injection than for inoculation by the other two methods.

The instability of the living culture when suspended in a fluid preparation prevents exact control and determination of the number of viable organisms in the currently employed liquid product. The vaccine is adjusted for potency on the basis of moist culture weight; 1 mg. of moist weight growth of the culture should originally give an approximate count of not less than 20,000,000 viable organisms. The intracutaneous preparation contains 1.0 mg. per milliliter, and the multiple puncture-scarification preparation, 15 to 20 mg. per milliliter. *The intradermal dose is presently limited to 0.1 ml. of the less concentrated vaccine.* For several years the liquid vaccine has been prepared in the United States by the following laboratories: Research Foundation, Tice Laboratory, Room 201, 1835 West Harrison Street, Chicago 10; State of New York Department of Health, Division of Laboratories and Research, New Scotland Avenue, Albany 1, N. Y., and The Henry Phipps Institute, Seventh and Lombard Streets, Philadelphia 47. Each of these laboratories distributes the vaccine to those local and state health officials and other authorities who consider the use of the vaccine sufficiently established to warrant its employment in selected groups of tuberculin-negative persons unduly exposed to tuberculous infection.

The Biologics Control Laboratory of the National Institutes of Health has issued a statement of minimum requirements prefaced by the following remarks to indicate the shortcomings of present methods of standardization:

> More data are required on certain essential aspects of the vaccine before these requirements can be entirely satisfactory. *These include* (*a*) the number of viable organisms required in the injected dose, (*b*) the significance of the nonviable organisms present in the vaccine, (*c*) perfection of a fully adequate method of preparing the vaccine in the dried form and (*d*) establishment of a safe storage period and a proper dating period.

The minimum requirements of the federal agency include specifications providing for a 10 day limit of viability for liquid vaccine and up to six months for dried vaccine. Commercial distribution of the vaccine by regular manufacturers of biologic products has not been feasible because of the relatively short life of the micro-organism in the currently used liquid preparations. The time required to complete potency tests on the liquid vaccine is longer than the 10 day limit for use after harvesting the culture. Furthermore, the ratio of viable to nonviable bacteria is subject to considerable variation after preparation of the liquid vaccine, so that it is not possible to estimate accurately the number of live organisms administered in the liquid vaccine at different intervals within the dating period. The nonviable bacilli are considered to have some immunizing effect, but the significance of this in comparison with the effect derived from viable organisms has been difficult to determine. Thus far, however, induction of allergy to tuberculin by means of a vaccine containing only killed bacilli has been less satisfactory than when attenuated live organisms were used. The successful preparation of a dried vaccine is likely to be a step in overcoming the problems of adequate standardization and wide distribution of the finished product. With the advent of stable dried preparations it may be easier to evaluate the ultimate efficacy of BCG in stimulating a positive tuberculin reaction.

The use of the tuberculin test is considered an essential preliminary to vaccination except in newborn infants. Only nonreactors should be given the vaccine Those are considered susceptible who do not react to either 0.0002 mg. of purified protein derivative (PPD) or 0.1 mg of old tuberculin (OT). Vaccination is performed within two weeks of the test in persons with negative reaction, and all vaccinated persons are retested with either form of tuberculin (preferably the same form and dose used prior to vaccination) after eight to 10 weeks. Follow-up testing of newborn infants may require use of a larger dose, 0.002 mg. of purified protein derivative or 1.0 mg. of old tuberculin Revaccination is performed on those who remain tuberculin negative on retesting, and annual follow-up with retesting and chest roentgenogram of both initial reactors and nonreactors is advisable..

Encouragement for wider use of BCG vaccine stems primarily from statistical studies, made in this country and Europe, which tend to substantiate claims that the morbidity and mortality rate has been reduced among certain exposed segments of the population. Although the validity of certain previous studies is questioned by some authorities, it appears that, where the disease is prevalent through the inadequacy or impossibility of exercising proper control measures, the use of the vaccine has been shown to be justified. The following quoted statement on BCG vaccine, issued by the American Trudeau Society, Medical Section of the National Tuberculosis Association, summarizes the present opinion of that organization regarding the place of BCG vaccine in the control of tuberculosis:

> The members of the Society and other physicians in the United States have been interested for many years in the active immunization against tuberculosis with BCG. The expansion of public health activities in the field of tuberculosis control by official and voluntary agencies and the acquisition of new knowledge concerning immunity in tuberculosis have prompted the American Trudeau Society to make the following observations and recommendations:
>
> I. BCG vaccine prepared under acceptable conditions, and administered by approved technics to persons negative to tuberculin, can be considered harmless.
>
> II. The degree of protection recorded following vaccination is by no means complete, nor is the duration of induced relative immunity permanent or predictable The need for further basic research on the problem of artificial immunization against tuberculosis is recognized and is to be emphasized Studies should be directed toward (*a*) improvement of the *immunizing* agent, (*b*) development of criteria for vaccination and revaccination, (*c*) more accurate determination of which groups in the general population should be vaccinated (several well controlled studies are under way at the present time), (*d*) promotion of carefully controlled investigative programs, which, as a rule, will be carried out best under auspices of official agencies such as the U. S Public Health Service, state and municipal health departments, and other especially qualified groups, and (*e*) devising of adequate record systems for management of statistical problems involved in recording and following large numbers of vaccinated people.
>
> III. On the basis of studies reported in the literature, an appreciable reduction in the incidence of clinical tuberculosis may be anticipated when certain groups of people who are likely to develop tuberculosis because of unusual exposure, inferior resistance, or both, are vaccinated (*a*) In the light of present knowledge, vaccination of the following more vulnerable groups is recommended, provided they do not react to adequate tuberculin tests: (1) doctors, medical students, and nurses who are exposed to tuberculosis, (2) all hospital and laboratory personnel whose work exposes them to contact with the bacillus of tuberculosis, (3) individuals who are unavoidably exposed to infectious tuberculosis in the home, (4) patients and employees in mental hospitals, prisons, and other custodial institutions in whom the incidence of tuberculosis is known to be high and (5) children and certain adults considered to have inferior resistance and living in communities in which the tuberculosis mortality rate is unusually high
>
> IV. It is recommended that efforts be continued to perfect and to meet *in practice suitable standards for the production* of BCG vaccine and that, when practicable, commercial firms be licensed under the National Institutes of Health to produce this vaccine
>
> V. The Society believes that since BCG vaccination affords only incomplete rather than absolute protection, the most effective methods of controlling tuberculosis in the general population are (*a*) further improvement of living conditions and the general health, (*b*) reduction of tuberculous infection, which can be accomplished *by modern public health methods and the unremitting* search among presumably healthy individuals for patients with infectious tuberculosis, (*c*) prompt and adequate medical and surgical treatment of patients with active disease, (*d*) segregation and custodial care of those not amenable to accepted forms of therapy and (*e*) adequate rehabilitation.
>
> VI. It is to be emphasized that BCG vaccination must not be regarded as a substitute for approved hygienic measures or for public health practices designed to prevent or minimize tuberculous infection and disease Vaccination should be regarded as only one of many procedures to be used in tuberculosis control.
>
> VII. Expansion of modern diagnostic, therapeutic and rehabilitation facilities is required at this time to make full use of these new methods which can accomplish further dramatic reduction of tuberculosis mortality and morbidity rates in the United States

In view of the difficulties in standardization of the vaccine and the controversial nature of previously published reports, the Council also sought the opinions of various other authorities. Most of them agree that, as now prepared and used, the vaccine is relatively safe. Some skepticism has been expressed regarding its complete safety for general use in infants.

Opinion is varied as to its efficacy or place among other methods for the control of the disease. It is obvious that undue reliance must not be placed on the vaccine as a protective measure at the expense of established measures of control. Most authorities agree that the vaccine is useful only as a partial immunizing agent. Because positive reaction to tuberculin following vaccination merely indicates sensitization rather than real immunity, some clinicians question the reliability of the Mantoux test as a means of determining either the need for BCG vaccine or its effectiveness as a prophylactic agent. Furthermore, there is considerable variation in the care exercised in performance and interpretation of the intradermal tuberculin test. Conversion of nonreactors to reactors through large scale use of the vaccine may alter the significance or destroy the value of the tuberculin test as a diagnostic screening method for detecting acquired exposures in community control programs.

Most authorities agree with the statement of the American Trudeau Society that BCG vaccination should be performed only among selected groups of nonreactors who are most likely to be exposed to infection Physicians in each locality must thus determine whether its use is warranted in accordance with present restrictions and without jeopardy to established control methods. At present, the control of tuberculosis by BCG vaccination should still be considered experimental. There is no scientific support for the contention that BCG vaccination should be extended to all persons with the same assurance that can be recommended for smallpox vaccine and other well established immunizing agents. Whatever protection may be provided by BCG vaccine, there is little doubt that it does not stimulate the development of the same degree of active immunity as is obtained with characteristic immune response produced by derivatives of the causative agents in certain other communicable diseases.

The Council desires to encourage the search for an effective immunizing agent against tuberculosis Improvements in BCG vaccine and further controlled studies which will permit definite conclusions regarding the value and limitations of this agent are necessary. At present the general use of BCG vaccine for all infants, children and tuberculin-negative persons in this country does not appear to be warranted and should not be encouraged.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. - - - CHICAGO 10, ILL.

Edited by
AUSTIN SMITH, M.D.

Associate Editor
JOHNSON F. HAMMOND, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Subscription price - - Twelve dollars per annum in advance
Cable Address - - - - "Medic, Chicago"

SATURDAY, DECEMBER 9, 1950

BRONCHOSCOPY IN PULMONARY TUBERCULOSIS

Bronchoscopy should always be determined by the lung specialist, and only on rare occasions by the bronchoscopic expert, according to Nils Froste[1] of the Central Sanatorium in Sandtrask. On the other hand, he may determine contraindications or reject bronchoscopy because nothing can be gained from it in certain cases. An effort was made by Froste to observe whether bronchoscopy is a diagnostic and therapeutic aid in pulmonary tuberculosis and whether the method presents too great a detriment or hazard to the patient. This is particularly pertinent when paraaminosalicylic acid and streptomycin are used in the treatment of bronchial conditions.

As a result of over one thousand bronchoscopic examinations on 420 patients, Froste notes debilitation and extensive laryngeal tuberculosis as contraindications. As a rule, perforations can be recognized early. Later, ulcerations make them indistinguishable from mucous membrane tuberculosis. In 88 cases bronchoscopic changes were not observed; in 52 cases nonspecific changes were noted that, in a number of cases, caused stenosis. The local treatment of tuberculosis of the mucous membrane has lost importance since the advent of streptomycin and paraaminosalicylic acid. Cauterization with 10 to 50 per cent silver nitrate solutions and galvanocautery were used for treatment, with greater bronchostenosis from the cautery. In patients suspected of having bronchostenosis, the clinical symptoms to a certain degree proved unreliable or the stenosis was beyond range of vision. In about half the cases with suspected valve mechanism, stenosis was probably the cause. The only form of treatment was removal of granulations causing the valve, but no suitable case was encountered. Dilation gave no lasting results, nor were results of aspiration treatment encouraging. For atelectasis, the cause was shown in about 45 per cent of those examined, and about half of these had tuberculosis of the bronchial mucous membrane with or without bronchostenosis. Silver nitrate, cautery and aspiration were used; the atelectasis disappeared in four of 23 treated with silver nitrate, while the atelectasis disappeared only temporarily after aspiration. For hemorrhage of unknown origin, bronchoscopic examination did not reveal the cause. Occlusion treatment with galvanocautery revealed cavity collapse and bacillary freedom in about one fourth, while the remainder were unimproved. Aspiration treatment was used in pressure cavities, in nonpressure large cavities and for stagnant secretions. In six cases with pressure cavity, collapse did not occur; results were equally disappointing with larger-sized nonpressure cavities. Bronchoscopy can be important in identification of the side-producing bacilli and in the procurement of secretion for examination. In differential diagnosis, cases of bronchial cancer and Schaumann's lymphogranuloma benignum were revealed. In some cases bronchoscopy was performed before pneumothorax, and thus pneumothorax was omitted in a few cases with bronchostenosis. Atelectases occurred in about a third of the cases of pneumothorax without previous bronchoscopy. In pulmonectomy and lobectomy, bronchoscopic examination is valuable for ascertainment of a healthy bronchial stump. One fourth of the cases with positive tuberculous findings showed progression after biopsy. Fewer complications arose in 10 per cent of the bronchoscopic examinations, mainly in cases of bronchial mucous membrane tuberculosis and bronchostenoses. Bronchoscopy gives the clinician much previous information from a diagnostic and therapeutic viewpoint. As far as complications are concerned, anesthesia constitutes the greatest danger, but, with knowledge of the proper methods of treatment, such fatalities can be avoided.

ACTIVITIES OF STATE MEDICAL SOCIETIES IN CHRONIC ILLNESS PLANNING

State and local medical societies are taking an active part in launching chronic illness activities throughout the country, according to a recent survey by the Commission on Chronic Illness. Statewide studies of the chronic illness problem have been made with medical society cooperation in California, Connecticut, Illinois, Maryland and New York. The New Jersey Medical Society is advising the Governor's Committee on Chronic Illness in that state, and in Indiana a recently appointed Governor's Committee on which the Indiana Medical Association is represented is now getting underway. Three state societies, North Carolina, Minnesota and Ohio, recently appointed chronic illness committees. In Wisconsin the medical society has been working actively to develop chronic illness legislation for some time. Replies to the commission's questionnaire from the New Mexico, Colorado, Oklahoma and Rhode Island societies indicate considerable interest in establishment of chronic illness committees in those states.

Although chronic illness affects all age groups, the steadily increasing proportion of the aged in our population gives activities in the field of geriatrics much significance in combating the total chronic illness problem, and some of the state societies are approaching the problems through special committees on the aging. In Michigan the geriatrics committee of the state medical society appointed a Subcommittee on Problems of Caring for the Aged, and the Washington State Medical Association reports that one of its committees has made a survey of the aged group in the state. Committees on care of the aged have been established by some of the county societies in Wyoming. The specific chronic diseases have for many years been under consideration by committees of the state societies. Through this single disease approach medical societies in many states have stimulated programs concerned with alcoholism, arthritis, cancer, diabetes, rheumatic fever, conservation of vision, prevention of deafness, industrial health, nutrition and physical and vocational rehabilitation.

---

[1] Froste, N.: Bronchoscopy in Pulmonary Tuberculosis: A Clinical Study of 1,001 Cases of Bronchoscopic Examinations, Acta tuberc. Scandinav., 1950, supp. 23, pp. 7-119.

The establishment by state medical societies of committees on chronic illness seems to be an indication of a growing recognition of the common medical, social and economic factors of chronic disease and the need for a unified approach to the whole problem. A reply from one state medical society to the commission's questionnaire succinctly expresses this viewpoint: "While each chronic disease or group of diseases is a specialty . . . of some physicians, it doesn't seem advisable to have a committee for each disease, as we have started to do. The solution may be to have a Committee on Chronic Illness with subcommittees for the various diseases."

WHY MEDICAL ECONOMICS?

Recent papers by Dr. R. B. Robins, Vice President, American Medical Association, have provoked considerable comment on the questions What is medical economics? What does it mean? The answers are important to the general population and particularly to the medical profession. They are important because they are intimately and directly related to health, happiness and freedom.

Increasingly, medical economics is a topic of everyday conversation. People everywhere are now asking about the cost of medical care, the numbers of health personnel, ways to make medical care insurable and means of assuring every American the medical care he needs. As never before, medical economics is in the spotlight of public and medical discussion. Why is there this sudden interest? Is it due to a grave health crisis in this country? Has the cost of medical care suddenly shot upward? Is the prevailing pattern of medical care no longer meeting the needs of most Americans?

Technological changes in medical treatment have come so fast in the past 10 years that they now may seem overwhelming and, in some respects, confusing to those who attempt to interpret their significance. Some of the new wonder drugs have greatly reduced the cost of treating many diseases, such as mastoid infection and pneumonia, but increasing knowledge of how to treat the sick and improvements in diagnostic technics have introduced some expensive and complicated procedures which increase the dollar cost of medical care to some patients and seem to produce greater variability in costs than formerly.

The dollar cost of medical care has risen during the postwar inflationary period. Medical care prices, however, have not risen nearly as fast as the cost of living. Moreover, the entire amount paid for medical care during the past 20 years has fluctuated narrowly around 4 per cent of total consumer expenditures for all goods and services. A family, however, may well look with alarm at the prospect of severe illness, which can mean a heavy drain on the family purse during these days of cheap money. The costs of medical care in any given year for particular families may exceed the normal of 4 per cent of total family purchases, although, on the other hand, the costs in other years may be negligible. The important thing is for the average family to view with such alarm the prospect of severe illness that it seeks a way to offset the temporary financial hardship that may occur when serious illness strikes. The most widely discussed and practical way is voluntary insurance. Americans have traditionally resorted to insurance when faced with risks which can be predicted only for a group. Today the American family can largely solve its own problem of medical economics by buying voluntary health insurance. Inflation has made it more necessary for the family to use insurance to normalize the costs of medical care and to buy, for example, more fire and life insurance.

But it is not the dollar cost alone which has brought medical economics to the forefront of public attention. Medical progress has transformed the life of the average man. Even 20 years ago there were serious problems of maternal and infant mortality in many sections of this country. Today the low maternal and infant mortality rates and the high life expectancy at every age in the best state and the worst are remarkably close together. The degree to which medical care is available to the general population and the favorable circumstances which have provided better food, housing and sanitation as our standard of living has improved have produced an ever longer life for more and more people. The number of physicians per 100,000 population in this country is the highest of any nation except Palestine, where many of the refugee physicians are not in practice.

Medical economics has come to the forefront in recent years because the vexatious problems of health of a decade or two ago have largely been solved, although others appear to take their place in the unending quest for better health and longer life. Ironically, the increase in the number of persons dying from heart disease and cancer is a measure of past medical progress. Health progress has enabled an increasing number of persons to live on into the higher ages of life when security becomes a major objective. And the voting strength of these older people who seek security—some would sacrifice basic freedoms to have their future guaranteed by law—is growing. Health progress has given them increased voting power.

With an aging population, medical economics becomes a part of a much larger problem of the need to change our social concepts to fit a new world. People made conscious of the magnificent achievements of American medicine look for more and more. And more and more they will have. Yet it is the disturbing premise of the practice of medicine that the doctor cannot win. He can change only the age and cause of death; he cannot prevent the eventual occurrence of death. Our task today is to redefine the problems of medical economics. An older population needs income—not medical care alone. Our working population needs to learn about voluntary insurance—not be forced to purchase overpriced compulsory insurance. And we must remember that, while medical care can never seem adequate to the family of a dying person, it can go on to provide more and better years for more and more of the American people.

Medical progress has come so fast that it seems to many people to be automatic and effortless. Yet the effort required in an inflationary period to earn the money to pay for the medical care resulting from this progress, as well as for all other goods and services, continues to be very real to the consumer. In summary, medical progress itself and cheap money are the principal reasons for the emergence of medical economics as a major aspect of the practice of medicine.

ACTUARIAL PROGRESS BY BLUE CROSS AND BLUE SHIELD

Voluntary health insurance plans have grown during the past two decades from humble beginnings. While the growth has been progressively forward, at times it has been erratic. In some instances plans were started by persons who, while well meaning, knew little about insurance. In most instances, however, expert advice has guided the development of the various plans and, as experience was gained, more effective organization, planning and coverage were provided. In various ways such improvement is obtained. For example, the recent publication of an actuarial and statistical manual by the Blue Cross Commission and the Blue Shield Commission, replete with punch card forms and coding instructions for the many types of illnesses which result in claims, marks a significant step forward. Some of the older plans, however, have well established statistical procedures. Although this manual has not yet been put into operation by all Blue Cross and Blue Shield plans, its publication signifies clearly to the American people that those responsible for these plans are determined to develop actuarial and statistical analyses of their operations so that they may attain or even exceed the level of knowledge which many of the older insurance companies have already developed regarding their own operations.

The Blue Cross Commission and the Blue Shield Commission urge their member plans to use these new procedures, and it is expected that by the end of 1951 most plans will be keeping these uniform actuarial and statistical records. When all plans collect and record their basic data regarding income, membership exposure and utilization according to the procedures set forth in this new manual, the boards of directors of these plans should be in a position to determine future planning with even more confidence. The actuarial and statistical committee of the Blue Cross Commission and the Blue Shield Commission, and particularly their actuarial staff, are to be congratulated for taking this progressive step. It will help the plans to meet the ever changing needs of the American people for health insurance.

THE USE OF EXPERIENCE

In an address to the Hunterian Society, Sir Heneage Ogilvie,[1] distinguished British surgeon and editor of *The Practitioner,* emphasizes the importance of experience, as a prerequisite for judgment, in the field of medicine. Experience, as Sir Heneage points out, consists of impressions received by the five senses, but many fail to gain wisdom from these impressions, for "experience can be made useful only by certain qualities of the mind, some given by inheritance, some by parental example, some by the influence of teachers or writers."

Sir Heneage Ogilvie considers that inability to profit by experience may be attributed to three factors. First, through a failure to acquire the habit of thought, a person may be unable to classify his experiences and thus to step from "experience to experiment." Second, through overclassification, he may fail to grasp the significance of a new experience in his effort to place it under an existing category. Third, specialization of knowledge may blind him to his own areas of ignorance, leading him to forget that "the highest wisdom is the realization that no man can know everything."

The problem then arises as to how to utilize our experiences to best advantage. Sir Heneage suggests that each new experience should be welcomed, scrutinized carefully and with an open mind and then allotted "to one of the trays on our mental desk: 'action,' 'pending' or 'finished.' " In so doing, however, individuality must be preserved, and knowledge received from books and teachers should be looked on as "a help, but not as a directive." This mental file of experiences requires constant rearrangement, for earlier experiences must continually be reexamined and reclassified on the basis of more recently acquired knowledge. Thus conclusions should never be considered final but "merely as the best we have been able to do with the material we have encountered so far."

---

[1] Heneage, O.: The Use of Experience, Brit. M. J. **2:** 663 (Sept. 24) 1949.

Experience properly used provides a standard whereby fresh experiences can be judged. Thus experience permits a physician to sum up quickly his patients as human beings, to recognize instantly danger signs in common complaints, to appreciate the limitations of a given technic and to tackle new problems with assurance. It is from experience that wisdom is gained, but "let us remember," cautions Sir Heneage, "that experience is never finished and wisdom is never complete."

MORBIDITY A PROBLEM IN TUBERCULOSIS

The British tuberculosis publication *Tubercle* calls attention to a condition that has confused medical interpretation for centuries.[1] For a long time *Tubercle* has been interested in the paradox of the decreasing tuberculosis death rate in England and Wales and the apparent increase in morbidity, and three years ago it produced graphs showing that the United States and Canada were having a similar experience. At that time the opinion was expressed that the increase in notifications represented an improvement in ascertainment rather than a true increase in morbidity, and this view is still held today. The threshold of notification seems to be at a different level for each doctor. Some report symptomless primary lesions in children; others do not; some even notify at the time of conversion of the tuberculin test; some report symptomless quiescent lesions discovered at mass radiography, which is most likely when the examinee is in the armed forces. Pleural effusions often escape notification as do tuberculous eyes or skin. A zealous physician, seeking a record in his district, gives the superficial impression that a serious epidemic has been sweeping his district since his arrival. New men and older men of modified opinions have meant an awareness of tuberculosis, and reported patients now qualify for more benefits than formerly. Consequently more patients are reported and the apparent morbidity increases. With the increase in the age at which first infection occurs, one must expect an increase in morbidity; primary infection is more serious in postpuberty, about which *Tubercle* expresses uneasiness and states that if there is a true increase in morbidity in young persons, then by all previous rules there should be a similar increase in mortality. It is doubted that this is occurring, but time will tell. Thus what appears to be a simple problem in tuberculosis is not necessarily simple when examined statistically.

---

[1] Morbidity, editorial, Tubercle **31**: 197, 1950.

COXSACKIE POLIOMYELITIS INFECTION

In the 1949 epidemic in Easton, Pa., fecal samples were collected from 48 consecutive patients admitted to the hospital for poliomyelitis. From 15 of these patients Melnick and Kaplan[1] of Yale University isolated both poliomyelitis and Coxsackie viruses. The question arose as to whether this meant a dual infection or merely a passive transfer of one virus through the alimentary tract. To answer this question they obtained serums from two typical paralytic patients on the third and fourth day of the disease and about 30 days later. *An 18,000 r.p.m. supernate of a 1:10 dilution of* the patient's stool was mixed with an equal volume of his own diluted serum. After standing for two hours at room temperature, each serum-virus mixture was inoculated into three monkeys in a test for poliomyelitis virus and into at least eight newborn mice in a test for Coxsackie ("C") virus.

In one patient the highest serum dilution which neutralized "C" virus on the third day of the disease was 1:10, increasing to a titer of 1:90 by the thirty-second day. A dilution of 1:10 of the same serum also neutralized completely the patient's poliomyelitis virus on the third day, increasing to a titer of 1:270 by the thirty-second day. Similar titers were obtained with the second patient.

Melnick concludes from this evidence that they were dealing with an infection with the two viruses. It is conceivable that the clinical symptoms might have been milder if the superimposed "C" virus had not been present. "C" virus may conceivably be one factor which turns a nonparalytic into a paralytic case.

POSTGRADUATE CONTINUATION COURSES FOR PHYSICIANS

The semiannual listing of postgraduate continuation courses for physicians, covering the period Jan. 1 to July 15, 1951, appears elsewhere in this issue. These data, prepared by the Council on Medical Education and Hospitals, include about 750 courses varying in length from a few days to several months and are available both for the physician in general practice and the specialist. Courses are being given in 29 states. The subjects covered embrace 45 major areas in the field of medicine. The increasing number of courses available for continuation study for the general practitioner is of particular interest. In keeping with the present world situation, courses are being presented in civilian defense and the nuclear sciences. The Council endeavors to make this listing as complete as possible. Institutions and organizations whose courses are not included in the present list are invited to furnish the Council with details pertaining to the opportunities that they have developed for continuation study by physicians.

---

[1] Melnick, J. L., and Kaplan, A. S.: Proc. Soc. Exper. Biol. & Med. **74**: 812 (Aug.) 1950.

WASHINGTON NEWS

(From the Washington Office of the American Medical Association)

Civil Defense Administration

It is now clear that the federal government is going to move into the civil defense situation, and without delay. This will mean, among other things, that medical preparations will be stimulated all down the line and that a start can be made on building up regional stockpiles of medical supplies. Since last September 19 a bill to create a Federal Civil Defense Administration has been before the Senate Armed Services Committee (S. 4162, which was reviewed at some length in this space on September 30). Last week several similar bills, but giving the federal government greater power, were introduced in both House and Senate. But Mr. Truman did not wait for Congress to act. Instead he used his executive powers to set up a Civil Defense Administration, which will function as an independent agency while Congress debates the bills. Civil defense activities of the National Security Resources Board, including its medical section, were moved to the new agency.

Mr. Truman did not immediately make public the executive order effecting the changes, so it is impossible to say just how much authority has been delegated to the new agency and its director, Millard F. Caldwell Jr., former Florida governor and former congressman. However, there is no question that Congress shortly will vote Mr. Caldwell all the powers needed to carry out his assignment. Under all the bills, the Civil Defense Administration would knit together regional and local civil defense organizations and authorize the federal government to step into the picture if state or community groups fail to meet their responsibilities in case of disaster.

Demands for Medical Manpower

At this writing it is impossible to say how many more physicians will be needed for the expanded military mobilization. Since July 1 the armed forces have increased from about 1,500,000 to just under 2,200,000. Up to the time of the new Korean crisis, military planners were aiming at a total force of 2,800,000 by July 1, 1951. It was expected that the accompanying medical requirements would be met largely by physicians classified 1-A and 1-A-O in the draft and reserves of similar status. However, plans now call for reaching the 2,800,000 mark several months earlier. When that time comes, the services undoubtedly will have to start calling in doctors now in deferred draft classifications, as well as reserves with World War II experience. When Mr. Truman made his request for $18,000,000,000 in supplementary defense funds, he did not specify a new manpower total but used these words to make it plain that one would have to be set: "We now face the necessity of having to raise our sights both in terms of manpower and in terms of production."

Last fall the services asked for a manpower ceiling of 3,500,000, but Congress refused to go that high. If, in view of the more critical situation, that total should now be decided on, several thousand more physicians would have to be provided—and most of them would be men who now are not expecting to be called.

The Doctor Draft

The National Advisory Committee to the Selective Service System, set up to assist in the doctor draft, has scheduled a conference of state advisory committee representatives for January. The National Committee will meet on January 11 and the state members on January 11 and 12. The plan is to have the chairman and two other members of each state committee present, representing physicians, dentists and the state health officers. Current problems will be discussed, particularly difficulties in effecting deferment of essential interns and residents.

In a message to state committee chairmen, Dr. Howard A. Rusk, chairman of the national committee, urged all advisory committees to support "unequivocally" requests for deferment of men who have not finished their first year of internship. At present, internship is interpreted as postgraduate education, but the requirement of one year's internship for military medical service, and generally for civilian practice, suggests that local boards would be willing to defer men in this status.

Dr. Rusk also advised state chairmen that hospital training beyond one year is to be regarded as a residency, not an internship, even though the internship may be of two years' duration. Meanwhile, National Selective Service Headquarters has requested local boards to "reopen and consider anew" the case of any special registrant at any time prior to issuance of an induction order "if the state or local advisory committee submits evidence and requests deferment."

Other important developments in the doctor draft:

1. The fact that a man has been placed in 1-A or 1-A-O does *not necessarily mean he will be inducted immediately.* A number of Selective Service boards so designated registrants in order to have them complete their physical examinations and be ready for induction should the advisory committees decide them available. If evidence suggests such men should be deferred, state and local advisory committees are urged to take action.

2. There are no blanket policies for interns, residents and teaching and research personnel; advisory committees consider each case individually.

3. In determining essentiality, advisory committees are giving particular attention to teaching programs and small community hospitals whose one year residents are necessary for the continuation of adequate services. Dr. Rusk said that inquiries indicated shortages particularly in psychiatry, neurology, public health, radiology, anesthesiology, pathology, physical medicine and rehabilitation, tuberculosis and research.

4. Preliminary estimates based on samplings indicate that, of the 14,000 physicians registered in priorities 1 and 2 of the draft, about 7,400 are currently in residency training and 1,800 in internships. This means that well over half of the potential supply for the first call are located in hospitals, where their immediate removal would in many cases create community problems.

Military Notes

The Air Force still is accepting reserve commission applications from registrants in draft priorities 2, 3 and 4, but is no longer accepting applications from those in priority 1. . . . The Army is calling up a number of Medical Service Corps reserves through the rank of captain on mandatory orders. . . . The Army wants 3,000 volunteer nurses and 250 women medical specialists, to meet requirements through June 30, 1951. The Army already has called 650 nurse reserves and 145 medical specialists on mandatory orders, and 477 nurses and 17 specialists have volunteered. Incidentally, the Army has reached the point where its nurse reserve rolls are deceptive; 2,200 of them are now on duty at Veterans Administration hospitals, and other hundreds are in similar essential positions or are ineligible for recall because they have children under 18 years of age.

Committee on Chemicals in Foods

The House Select Committee on Chemicals in Foods, resuming hearings in Washington, cited an article in The Journal of The American Medical Association as evidence that the public requires more protection. The item was a note of caution, "Pesticides: A Statement Concerning Needed Information" (**142**:259 [Jan. 28] 1950). The committee counsel read a digest of the article to Lea F. Hitchner, executive secretary of the Agricultural Chemicals Association (a group of producers) and asked whether he disagreed. Mr. Hitchner said he did disagree and that he thought the Council on Foods and Nutrition, which authorized the statement, might believe differently now. He said that subsequently the Council had been informed of the tremendous amount of research work being done on these chemicals. However, in reply to another question by counsel, he said he had not asked the American Medical Association Council for a supplementary statement.

Prior to this exchange, Mr. Hitchner had said that his association believed that what was needed was not a new law to protect the public but better enforcement of the present law. He said that 20 of the 30 major producers are spending about $3,000,000 a year in research.

Another witness, Dr. Arnold J. Lehman, director of the Division of Pharmacology, Food and Drug Administration, discussed results of investigations on toxicity of several fungicides, pesticides and other substances. He said FDA had worked for two and a half years on a study of dulcin, an artificial sweetening agent about 200 times as sweet as saccharin. According to Dr. Lehman, the investigation made it quite evident that: "dulcin is a poison and should not appear in food." He said that producers of dulcin preparations and a similar product, identified as P-4000, had complied with requests that they not be used in food. These substances, he said, were used on rats, giving the animals proportionately the same amount of the drugs humans would receive. Dr. Lehman said the substances were found to "inhibit growth, to have adverse effects on blood and to produce liver tumors." He noted that one trade name for dulcin is sucrol but emphasized that this is not to be confused with sucaryl,® which FDA has found to be not harmful.

Dr. Lehman said use of boric acid and borax in food processing or packaging is harmful and that the toxicity level of three other fungicides is "too close to the danger line." These he identified as sodium orthophenyl phenate, diphenyl and dehydroacetic acid.

Dr. Lehman described the insecticide chlordane as "one of the most toxic of insecticides we have to deal with." He said it penetrates the skin readily, is volatile and is "very toxic to liver and kidneys." He said in his opinion it was four or five times as poisonous as dichlorodiphenyltrichloroethane (DDT). Dr. Lehman said that chlordane, as sold in hardware stores for use in spray guns, is too dangerous for home use, although if applied properly is not harmful for certain specific purposes. Dr. Lehman acknowledged that the Food and Drug Administration has no authority in certain fields, even where toxic agents are being distributed.

The committee, under the chairmanship of Representative James J. Delaney (Democrat, New York) is investigating chemicals introduced in foods, chemical pesticides (applied to growing food crops and as chemical preservatives) and chemical fertilizers. One of the suggestions is that the Food and Drug Administration be given the same authority over these substances that it now has over new drugs.

Other witnesses during the week included C. W. Crawford, Deputy Commissioner, Food and Drug Administration; Dr. James B. Allison, director, Bureau of Biological Research, Rutgers University; Dr. John C. Krantz Jr., University of Maryland School of Medicine; Dr. Robert S. Harris, professor of biochemistry of nutrition, Massachusetts Institute of Technology, and representatives of the Department of Agriculture and several cooperative associations. Hearings continue through December 19.

Notes

An issue of *Public Health Reports* (vol. 65, no. 46) is devoted entirely to health resources; a fairly complete picture of civil defense preparations and problems to date but not too much on military aspects . . . Canada and the United States are working on an international agreement for civil defense . . . Acting director of NSRB's Civil Defense Office told the American Welfare Association that there could be no mass evacuation of great cities in case of attack. James J. Wadsworth said, "There will be no retreat from the production lines. There will be no voluntary surrender of a single machine, or a single home, that might help our armed forces to wage war." . . . The American Pharmaceutical Manufacturers' Association has been urged to serve as one of the strong points in civil defense planning, particularly in development of new drugs, establishing storage depots, utilizing laboratories and experimental operating rooms as emergency medical centers and offering its personnel for emergency sick care . . . Of the 100,000 persons helping FSA prepare material for the White House Conference on Children and Youth, held here this week, 15,000 were physicians, teachers, and others dealing with children. Among the physicians to give keynote speeches for the conference were Leonard W. Mayo, and Benjamin M. Spock, both of Rochester, Minn. . . Schools and hospitals wanting to share in United States surplus property now have a clearer picture of what to do. An office of Field Services, Division of Surplus Property Utilization, has been set up in FSA to handle distribution to nonprofit institutions, as authorized by the last Congress. . . . The Navy's Bureau of Medicine and Surgery personnel are sponsoring "Operation Toy" to send gifts to 500 refugee children in Hoffheim, Germany . . . The first of the Navy's three volume series, "Color Atlas of Pathology," has just been published by the J. B. Lippincott Company, Philadelphia. Designed as a usable standard of comparison for study and interpretation of gross and microscopic findings in pathology, this first volume took six years to prepare. Other volumes will be on the market by 1954 . . . The National Technical Task Committee on Industrial Wastes, meeting for two days in Cincinnati, worked on problems of organizing research in water pollution . . . The Gorgas Memorial Institute of Tropical and Preventive Medicine has reelected the following officers: Dr. J. F. Siler, president; Maurice H. Thatcher, vice president; Dr. Walter A. Bloedorn, secretary; Hulbert T. Bisselle, treasurer, and Dr. Donald A. McCormack, assistant treasurer. Mr. Thatcher is also general counsel . . . The Department of Agriculture reports people now are eating just about what they did 40 years ago (per capita), but now greater emphasis is on fruits, vegetables and dairy products. . . . Dr. Thomas Parran, ex-surgeon general and now dean of the Graduate School of Public Health at the University of Pittsburgh, is on President Truman's Advisory Board on International Development, guiding the Point 4 program . . . 32,544 handicapped persons were employed through state employment centers during October, the highest total for any one month ever reported.

ORGANIZATION SECTION

PRESIDENT'S ADDRESS TO THE HOUSE OF DELEGATES

ELMER L. HENDERSON, M.D.
President, American Medical Association

Mr. Speaker, Members of the House of Delegates:

In this general report to you today, I should like to touch briefly on five important subjects, in the following order: financial support of medical education, the position of the American Medical Association with respect to the program of hospital standardization, public health units, the results of the A. M. A. nation-wide advertising program and the significance of the November elections.

FINANCIAL SUPPORT OF MEDICAL EDUCATION

In the last four years the attention of the public and the profession has been called repeatedly to the fact that the postwar period has been a difficult one financially for our medical schools. Inflation, rising costs, reduced income from endowment, and fewer large benefactions, together with increased responsibilities for education, research and community service, have created problems of varying magnitude for the individual schools. At a time when advances in medical science make refinements and improvements in medical education desirable, schools have found it difficult to secure the funds needed for such developments. Furthermore, the present international crisis will in all likelihood create still further problems for the schools.

During the postwar period, increased local support has been of major assistance to many schools in meeting their financial problems. Other schools, particularly the privately endowed schools, have not been so fortunate. For the most part they have not been able to increase their income in proportion to the increases in their costs.

The past year's controversy over the question of federal aid for medical education has made many, both within and without the profession, forget that federal aid is but one segment of the problem of the future financial support of the medical schools. Discussions of this subject have tended to be limited to the narrow issue of whether federal aid is necessary or desirable. Many other sources of financial aid to medical education have been overlooked, and the profession's responsibility to assist actively in gaining additional support for the schools has not been fully recognized. Events of the past year have made it clear that there are those who interpret the American Medical Association's opposition to the bills for federal aid to medical education presently before Congress as indifference to the problems of the medical schools and the needs of the nation for adequate facilities for the training of physicians. We must make it clear that the profession is not indifferent to these problems. Let us face clearly our obligation individually and collectively to provide significant financial assistance to the medical schools and to study other ways by which we can help them meet their problems.

POSITION OF AMERICAN MEDICAL ASSOCIATION WITH RESPECT TO THE PROGRAM OF HOSPITAL STANDARDIZATION

At the San Francisco meeting the Board of Trustees learned that the American College of Surgeons was considering the possibility of conducting its program of hospital standardization in cooperation with other interested organizations. It also was reported that the American Hospital Association had expressed its willingness to assume major responsibility for the future conduct of this program. Subsequently, the House of Delegates of the American Hospital Association passed a resolution authorizing the establishment of a program of hospital standardization to be administered by its Trustees.

Recognizing that any program of hospital standardization would have a direct bearing on the standards of medical practice in hospitals, the Trustees of the American Medical Association, following the San Francisco meeting, began a series of consultations with representatives of the American College of Surgeons, the American Hospital Association and the American College of Physicians in an attempt to clarify the position of these several organizations. As a result of these conferences, I can report that very real progress has been made toward the objective of developing a cooperative program in which the best interests of the public, the hospitals and the profession will be considered.

The most important development has been the decision taken by the American College of Surgeons at its annual meeting this fall to continue its program of hospital standardization in the hope that within the near future a satisfactory plan can be developed for a program in which the American Medical Association, the American Hospital Association and the American College of Physicians also will participate.

Since this decision was reached by the American College of Surgeons, further conferences have been held and further progress has been made. At the last conference two weeks ago, a joint committee of the four organizations named was appointed to draft a basic plan for a cooperative program. The outlook for an agreement within the next six to twelve months on a plan that will be satisfactory to all the interested organizations is very good indeed. I think it important that the House of Delegates should know that after certain initial misunderstandings were cleared away, the representatives of the four organizations have found themselves working together harmoniously in an effort to achieve the common objective of an expanded program which will insure better care of the sick.

PUBLIC HEALTH UNITS

The American Medical Association has long believed that the existence of effective and properly operated public health units is basic to the maintenance and improvement of the health of the people. As early as 1883, a report was made at the annual meeting of the Association covering a survey conducted to ascertain what states and counties had health departments. In the years that have followed, our interest in the subject has remained unabated. Resolutions have been adopted by the House of Delegates urging complete coverage of the nation's population by county, district or regional full time modern health units. Point 6 of our 12 point program gives proper and additional emphasis to the important role that public health departments must continue to fill in our ever expanding and untiring efforts to provide the people with better and better health care. Tremendous progress has already been made; much more needs to be done.

I stress this subject because, unfortunately, action taken by the House of Delegates at the San Francisco meeting in June 1950, with reference to a bill in Congress to authorize federal financial aid for the development of health departments, has led to misunderstanding of the present point of view of American medicine toward the development of such programs.

Did the San Francisco action, in effect, reverse the previous and long-established position of the Association? This is a question that is being asked. In order to remove any doubt about the matter, I should like to suggest that the House give consideration at this session to reviewing the action taken earlier this year for the purpose of clarification. In my judgement, such a review now would be most timely.

Presented at the Fourth Annual Clinical Session, American Medical Association, Cleveland, Dec. 5-8, 1950.

THE A. M. A. ADVERTISING PROGRAM

Since our annual session last June in San Francisco, the main development in the National Education Campaign has been the nation-wide October advertising program, which this House of Delegates approved unanimously at the annual meeting.

I am proud and happy to report that the decision which you made last June has been more than justified by subsequent events. That decision has enabled American medicine to make history in the field of public relations and advertising, as well as in the realm of public affairs and government.

A printed, detailed report on the results of the advertising campaign will be distributed later this week during the clinical session here in Cleveland. Today, however, I do want to give you a brief preview of some of the highlights in our advertising success.

The campaign marked the first time in the history of the United States that a profession, business or industry, under government attack, has been successful in rallying nationwide advertising support from thousands of unrelated groups, companies and individuals.

That unselfish, spontaneous support came from more than 65,000 individuals, firms and associations, with the vast majority located in the small cities and small towns of America. They represented not "big business" but the "grass roots" life of the nation.

Those 65,000 new-won friends of our profession, reaffirming their faith in the American way of life, spent more than $2,000,000 in a two week period, or nearly twice as much as the A. M. A. itself, in support of medical freedom. For that practical assistance and splendid vote of confidence, we should be deeply grateful to the merchants of Main Streets all over America.

Today, as a result of the tremendous impact of our advertising campaign, all the nation knows that American medicine does not stand alone. Thousands of allies have taken public stand beside us.

Major public issues still are resolved by the millions of men and women in this country with a strong sense of independence and responsibility, who think things through and speak their minds. The voice of the men and women who live on Main Street is the compelling voice of America—and it has spoken once again.

THE NOVEMBER ELECTIONS

The people of America also spoke in November, at the polling places of the nation. The election results last month were heartening and reassuring to the medical profession, which has been fighting a nonpartisan fight not only against compulsory health insurance, and against the broad trend toward socialism in America, but for the preservation of this nation's traditional way of life.

Neither the American Medical Association nor the state and county medical societies took part in political activities aimed at the election or defeat of individual candidates. But thousands of doctors and their wives, exercising their rights as individual citizens, did take an active part in election activities in many areas of the country. And let us be thankful that they did.

I have nothing but praise and commendation for all doctors —regardless of their party affiliations—who as American citizens played their rightful role in public affairs, and who fought for their convictions at the polls.

The November elections brought defeat to a number of the most outspoken advocates of compulsory health insurance, and also to a number of candidates who hedged on the issue. The elections also provided a general repudiation of the over-all trend toward state socialism.

I think we can say at this point, in view of the events of the past several months, that the majority of the American people agree with the stand of the medical profession, and that any compulsory health insurance bill in Congress today would go down to defeat by at least a 2 to 1 vote.

But let me close this report with a note of warning. We still have much work to do before all the basic issues confronting us are finally resolved. To relax now, under the delusion that we already have achieved complete victory, would be to invite a renewed attack by the socializers at a later date. We cannot afford to relax either our vigilance or our effort.

SOCIALIZED MEDICINE IS NO BARGAIN

WILLIAM L. HUTCHESON

General President, United Brotherhood of Carpenters & Joiners of America

I am against socialized medicine. So is the organization which I have the honor of heading. At the Twenty-Sixth General Convention of the United Brotherhood of Carpenters and Joiners of America, held in Cincinnati last September, 1,300 delegates, representing better than 54 per cent of the total membership, voted down a resolution to support the national health program. This probably does not jibe with the feelings of a good deal of the rest of the labor movement, because much of the pressure for "free" medical care is coming from labor organizations. But it does reflect my sentiments and the sentiments of our recent convention.

Saving a dollar has never been distasteful to me. In fact, I like to get as much for my money as the next man. That is one of the reasons why I oppose socialized medicine. It is no bargain. It looks cheap the way the backers present it, but when you dig down under the fancy layer of propaganda frosting you find that it can be mighty expensive. The British people have already discovered this fact. The July issue of *International Labour Review,* official publication of the International Labour Office, contains some very interesting data on the operation of the national health service in Britain. I quote a few lines of that report:

"The total (gross) cost of the National Health Service in 1948-1949, the first year of operation, greatly exceeded the original estimate. This was £265,000,000, as against a revised estimate of £368,000,000, with a net cost to the taxpayer of £278,000,000. The revised estimate for the year 1949-1950 was £450,000,000, as against an original estimate of £352,000,000. For 1950-1951 the cost is estimated at £484,000,000; in 1946, when the bill was passed, the service was believed to cost £167,000,000 a year."

In case you don't know what the International Labour Office is, I can best explain its functions by quoting a bit from its preamble:

"The International Labour Office is an association of nations, financed by Governments and democratically controlled by representatives of Governments, of management and of Labour organizations.

"Its purpose is to promote social justice in all countries of the world. To this end it collects facts about labour and social conditions, formulates minimum international standards, and supervises their national application."

The ILO's publication, *International Labour Review,* is published in the United Kingdom. As an international organization, ILO's findings are supposed to be strictly impartial.

Getting back to the report; if I read it correctly, service that was supposed to cost £167,000,000 per year when the plan was set up in 1946 costs £484,000,000 per year, and the end is not yet in sight. By my old-fashioned kind of arithmetic that is an increase of better than 345 per cent, and I am sure my poor old mother, who always made a dime do the work of a quarter, would not consider that kind of proposition any bargain.

I know! I know! The socialists claim that money is of no consequence in the matter of national health; getting the poor the same quality and quantity of medical care as the rich can get under private enterprise is the advertised objective of the

---

Read before a Joint Meeting of the A. M. A. House of Delegates and the Third Annual Conference of the National Education Campaign, Cleveland, Dec. 7, 1950.

National Health Program. That sounds fine, too; but on page 57 of the ILO report, I find the following sentences:

"A survey of the distribution of doctors by boroughs shows that certain wealthier districts (of London) have an average of one doctor for 1,261 patients, while in the inner East End there are 2,472, or twice as many patients, per doctor. For a group of southern boroughs, the average is 2,897."

If that isn't the "one horse and one rabbit" recipe transferred from the meat pie maker's kitchen to the national health program, then I need new reading glasses. I have tried to figure it from all angles, but the answer I always come up with is that the lumbago, shingles and bellyaches of London's South Siders get only half the attention that similar ailments get in the swankier districts. For all the planning that has been done, there is still an uneven distribution of doctors in London. If the backers of the national health program are to achieve their objective of equal health protection for all, the next step must be to tell doctors when and where and how they are to practice. Therein lies my greatest fear of socialization.

Socialization and death have one thing in common; you cannot be either a little bit socialized or a little bit dead. It is whole hog or nothing. After two years of the national health program, London doctors still have preferences as to where they want to practice. By compulsion of one kind or another, somebody is going to have to shoo doctors away from the fancier neighborhoods into the tenement districts or the program will wind up where it started. When the government is given authority to tell one group or one profession where and how its members are to work, no other group or profession can be safe for long.

If the day ever comes to America when Uncle Sam usurps the power to dictate to doctors under a health plan, it will be a sad day for carpenters. Adequate housing is still an unsolved problem in this country, especially for the poor. If it is logical to nationalize the medical profession to get more medical service for the poor, it is equally logical to nationalize the home construction industry to get roofs over the heads of the lower income groups.

I do not know much about doctors, but I know quite a bit about carpenters. They are an independent lot. They want to work where and how they please. The first bureaucrat who told a carpenter he had to work in Little Rock when he wanted to work in Lancaster would be gumming his food for lack of teeth. Carpenters want to be free agents; free to work where they want to; free to negotiate the terms of their wages and working conditions through collective bargaining; yes, even free to leave the industry and try their luck at something else if the spirit moves them.

They will retain these freedoms only so long as all other groups retain them too. Socialization is like a wolf with a tapeworm; once it starts gnawing, it never can stop. Socialized medicine would only be the first bite out of our free enterprise system; it would not be many years before the carpenters would be feeling the teeth of socialization on the seats of their overalls. Anyway you look at it, socialized medicine is no bargain and the carpenters want none of it.

I know that the backers of the national health plan in this country resent the term "socialized medicine." They have all sorts of arguments to "prove" that doctors and patients will remain free as the air under their program. They make a strong case. Perhaps if human nature were less ornery and less avaricious, an idealistic health program might work out all right. But so long as people have preferences, so long as Park Avenue has more appeal than Hell's Kitchen, there will be an uneven distribution of doctors under any plan that does not contain compulsion. And once compulsion enters the picture, the rights and freedoms of all citizens stand in jeopardy. To me, it is as simple as that. For 40 years I have fought communism tooth and toe nail because I do not want anyone pushing me around. I certainly do not want to put my head into a socialization noose voluntarily when the results can be as undesirable as communism.

I have always respected the medical profession for the fine contribution American medicine has made to human welfare. As I watched your battle against regimentation during the past two years, I have added to that respect. The physicians of this country have shown that they are willing to fight for their convictions. I salute you today not only as doctors but as crusading citizens as well. We in the labor movement have our own cross of regimentation to bear. The fight you are making is part of the same war. It is a war against concentration of authority in a few hands in Washington. As a veteran of 40 years in the labor movement, I know what it is to fight for human rights. I am happy to take my stand beside you.

THE SCIENTIFIC EXHIBIT

Atlantic City Session June 11-15, 1951

Each Section of the Scientific Assembly has elected a representative to the Scientific Exhibit for the Atlantic City Session, June 11-15, 1951, as follows:

Section on Internal Medicine, Dr. Wesley W. Spink, University Hospital, Minneapolis 14.

Section on Surgery, General and Abdominal, Dr. Walter G. Maddock, 250 East Superior Street, Chicago.

Section on Obstetrics and Gynecology, Dr. Frederick H. Falls, 1853 West Polk Street, Chicago 12.

Section on Ophthalmology, Exhibit Committee, Dr. Georgiana D. Theobald, 715 Lake Street, Oak Park, Ill., Chairman; Dr. Donald J. Lyle, 601 Union Trust Building, Cincinnati 2, and Dr. Phillips Thygeson, 87 North Sixth Street, San Jose, Calif.

Section on Laryngology, Otology and Rhinology, Dr. Francis W. Davison, Geisinger Memorial Hospital, Danville, Pa.

Section on Pediatrics, Dr. F. Thomas Mitchell, 376 South Bellevue Boulevard, Memphis 4, Tenn.

Section on Experimental Medicine and Therapeutics, Dr. Robert W. Wilkins, Evans Memorial Hospital, 65 East Newton Street, Boston.

Section on Pathology and Physiology, Dr. F. W. Konzelmann, 1711 New York Avenue, Washington 6, D. C.

Section on Nervous and Mental Diseases, Dr. Leon J. Whitsell, 909 Hyde Street, San Francisco 9.

Section on Dermatology and Syphilology, Dr. James R. Webster, 122 South Michigan Avenue, Chicago 3.

Section on Preventive and Industrial Medicine and Public Health, Dr. Paul A. Davis, 1436 Delia Avenue, Akron, Ohio.

Section on Urology, Dr. Roger W. Barnes, 1216 Wilshire Boulevard, Los Angeles.

Section on Orthopedic Surgery, Dr. Robert J. Joplin, 1180 Beacon Street, Boston 46.

Section on Gastro-Enterology and Proctology, Dr. J. P. Nesselrod, 636 Church Street, Evanston, Ill., and Dr. Everett D. Kieffer, The Lahey Clinic, 605 Commonwealth Avenue, Boston.

Section on Radiology. Dr. Richard H. Chamberlain, 3400 Spruce Street, Philadelphia.

Section on Anesthesiology, Dr. Scott M. Smith, 325 Eighth Avenue, Salt Lake City.

Section on General Practice, Dr. Charles E. McArthur, 205 East Seventh Avenue, Olympia, Wash.

Section on Diseases of the Chest, Dr. Edwin R. Levine, 109 North Wabash Avenue, Chicago 2.

Section on Physical Medicine and Rehabilitation, Dr. Arthur L. Watkins, Massachusetts General Hospital, Boston 14.

Application blanks for space in the Scientific Exhibit are now available and may be obtained from the Section representatives or the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago 10.

GOVERNMENT SERVICES

Army

Consultants to Go Overseas in 1951

Thirty leaders of civilian medicine will go overseas for the Army Medical Service during 1951 as consultants to the surgeons of the Army commands and to bring the latest developments in medical science to Army physicians. The European Command will receive 12 consultants, the Far East Command 12 and the Panama Canal Zone six. The scope of the Army's overseas medical consultant program has been reduced in the past two years, since the graduate professional training program has increased the number of medical specialists in the regular Army. Over 200 regular Army medical officers have now been certified by American specialty boards. Each of the 30 consultants who will be assigned to oversea tours must have been certified by the American Board in his specialty, must have had military experience and must be a recognized teacher.

The schedule for the European Command calls for two-man teams, as follows: February, one pediatrician and one obstetrician; April, one surgeon and one internist; June, one neuropsychiatrist and one orthopedist; August, one internist and one obstetrician; September, one surgeon and one neuropsychiatrist, and November, one internist and one orthopedist.

One specialist wil go to the Far East Command each month beginning in January. The schedule calls for an internal medicine consultant in January, May and September, a neuropsychiatrist in February, June and October, a surgeon in March, July and November and an orthopedist in April, August and December. Internists will be assigned to Panama in February, June and October and surgeons in April, August and December. Each consultant, on his return to the United States, will submit a report and recommendations to the Surgeon General as to administration and treatment, which will also serve as a check on the observations of the Army's own medical specialists.

Decentralize Appointments for Medical Draft Registrants

The inauguration of a decentralized system of reserve officer appointments, which will expedite action on applications made by draft-eligible physicians, dentists and veterinarians, has been announced. Under the new system, the entire processing of reserve commissions will be accomplished in the six Continental Army areas and overseas commands for applicants now enrolled under the current draft call. Commissions will be issued by Army commanders and overseas commanders to applicants who qualify without referral to the Department of the Army. For those subject to induction by Selective Service, the following procedure will be followed:

Initially, the registrant will fill out a questionnaire that will include a statement as to whether he desires to accept a commission. This questionnaire will accompany him to his local induction station when he reports for his physical examination. At that time he will be given another opportunity to indicate his willingness to accept a commission, if he has not previously so indicated. Records will then be forwarded to the appropriate Army headquarters where the qualifications of the registrant will be determined. If the registrant is qualified, the Army commander will send him a letter of appointment in an appropriate grade in the Medical, Dental or Veterinary Corps Reserve, with instructions to complete an oath of office within 72 hours and notify his Selective Service Board of his commissioned status. Physicians and dentists accepting commissions under these circumstances will receive the special $100 authorized pay for volunteers.

Awards and Commendations

CAPT. WARREN H. BRUNE

The Silver Star was recently awarded to Capt. Warren H. Brune, formerly of St. Louis, "for gallantry in action against the enemy at Kumchon, Korea." On August 2, 1950, Battery B of the 99th Artillery Battalion, to which he was attached, was subjected to enemy artillery and mortar counter battery fire, which inflicted severe casualties. As the shelling continued Captain Brune, disregarding his own safety, moved an ambulance into the battery position and directed evacuation of the wounded. As the ambulance was being loaded he rendered medical treatment throughout the area although continually exposed to shellfire. When the battery was withdrawn to a more tenable position, he effected the complete evacuation of all dead and wounded personnel.

CAPT. GENE E. LAM

The Bronze Star Medal with "V" device was recently awarded to Capt. Gene E. Lam, formerly of Glenrock, Wyo., "for heroic achievement on August 12 in the vicinity of Kang-Ni, Korea," when a Battalion Aid Station was subjected to enemy artillery fire. Captain Lam aided in the evacuation of wounded patients to safety, moving through continuous artillery fire in order to accomplish this mission. He returned to the building that housed the aid station to remove critically needed medical supplies and discovered three wounded men still in the building. He immediately started emergency treatment, removing two patients from the building and administering plasma to the third. Enemy artillery continued to fall on the building during the treatment of this last patient. Only when the treatment was completed and the patient could be moved did Captain Lam leave the building with his patient.

CAPT. WILLIAM O. HEDBERG

The Bronze Star Medal was recently awarded to Capt. William O. Hedberg, formerly of Fort Atkinson, Wis., "for heroic achievement near Kumchon, Korea, on September 25." During an attack by Company A, 5th Regiment, when casualties were mounting, he left his position of relative safety and moved into the open in order to care for the wounded. Under intense fire from tanks, mortars and machine guns, he went about his task with utter disregard for his own safety. His coolness under fire instilled courage in the wounded, and his heroic actions were an inspiration to those fighting about him.

Navy

Ships Doctors Wanted

The Military Sea Transportation Service, Atlantic, is accepting applications for civilian positions of ships doctors aboard Navy transports. These transports are operated by the Navy for the International Refugee Organization in connection with the resettlement of displaced persons from Europe to various countries throughout the world. Doctors who are accepted for such employment join their ships at New York and sail for Europe and thence to various ports throughout the world. Voyages generally are of 90 days' duration with vessels returning to New York. The salary is $6,350 per annum plus maintenance. Applicants may apply for one or more voyages and are not bound to serve beyond one voyage. Applicants are required to have a current license to practice medicine or surgery issued under the authority of a state or territory of the United States or the District of Columbia, to be graduates of an approved school of medicine and to have completed at least one year of general rotating internship. Candidates must be United States citizens and be available to leave on short notice. Minimum age requirements are 25 to 55. Information may be obtained from the Employment Branch, Industrial Relations Division, Military Sea Transportation Service, Atlantic, Fifty-Eighth Street and First Avenue, Brooklyn 20.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

Dr. Gorgas Named to Hall of Fame.—Dr. William Crawford Gorgas, who destroyed breeding places of yellow fever mosquitoes in the Panama Canal Zone and thus made possible the building of the canal, was elected in November to the Hall of Fame for Great Americans at New York University. He was one of six elected from 186 nominated by private citizens throughout the country. These elections are held every five years. Only seven can be added in any one election, and candidates must have been dead at least 25 years. Only six nominees received the necessary majority in the 1950 election. Dr. Gorgas, an officer of the Army Medical Corps, attained the rank of surgeon general. The Gorgas Memorial Institute of Tropical and Preventive Medicine, Washington, D. C., and the Gorgas Memorial Laboratory of Tropical Research in Panama were established in his honor.

CALIFORNIA

Prosthesis Institute.—An institute on upper extremity prosthetics will be held on the Los Angeles campus of the University of California January 22-26. The purpose of the conference is to demonstrate the technics of fitting, equipping and harnessing upper extremity prosthetics. For information address the Department of Institutes and Lectures, University of California Extension, Los Angeles 24.

COLORADO

Limited Private Practice for Faculty Members.—Delegates to the annual meeting of the Colorado State Medical Society have approved a set of principles under which salaried physicians of the University of Colorado School of Medicine will be permitted to accept a limited amount of private practice. At Reference Committee hearings Director Ward Darley stated that salaried professors should accept only patients referred to them by colleagues in private practice. Off-campus offices and private hospitals would be used for this added activity of "full time" faculty members. Salaries would be properly adjusted, enabling the medical school to save enough to help increase the incomes of preclinical faculty members. Regents and the medical school administration plus an advisory committee of private practitioners and clinical and preclinical faculty members are to work out details of procedure.

DELAWARE

State Medical Election.—At the October meeting of the Medical Society of Delaware the followinig officers were elected for 1951: Dr. Charles E. Wagner, Wilmington, president; Dr. Ervin L. Stambaugh, Lewes, president-elect; Dr. Benjamin F. Burton Jr., Dover, vice president; Dr. Andrew M. Gehret, Wilmington, secretary, and Dr. Joseph M. Messick, Wilmington, treasurer.

FLORIDA

Midwinter Seminar.—The fifth annual University of Florida Midwinter Seminar in Ophthalmology and Otolaryngology will be held again at Miami Beach, January 15-20. The lectures on otolaryngology will be presented on January 15, 16 and 17 and those on ophthalmology on January 18, 19 and 20. Lecturers for the courses in otolaryngology will include Drs. Louis H. Clerf, Philadelphia; Gordon D. Hoople, Syracuse; Dean M. Lierle, Iowa City; Benjamin Spector, Boston, and George Shambaugh, Chicago. Ophthalmologists who will lecture include Conrad Berens, New York; Raymon Castroviejo, New York; Jack S. Guyton, Baltimore; Harold G. Scheie, Philadelphia, and Edmund B. Spaeth, Philadelphia.

The university will be host January 17 to the Southern Section meeting of the American Laryngological, Rhinological and Otological Society. Among the speakers at this meeting will be Dr. Chevalier L. Jackson of Philadelphia. On Wednesday evening all registrants are invited to attend the Midwinter Convention of the Florida Society of Ophthalmology and Otolaryngology meeting concurrently with the seminar. A certificate of attendance to this convention will be issued for deduction purposes.

ILLINOIS

Hospital News.—St. Francis Hospital, Evanston, celebrated its golden anniversary October 10.—Ceremonies dedicating a new addition to the Rockford Municipal Tuberculosis Sanatorium were held October 3, with Governor Adlai E. Stevenson giving the principal address. With the new addition the sanatorium will have a capacity of 104 beds, providing treatment for tuberculosis patients in all stages of the disease. The building was constructed at a cost of about a million dollars.

Chicago

Fellowships in Pediatric Cardiology.—The pediatric cardiology department of the Children's Division of Cook County Hospital is accepting applications for fellowships for immediate appointment. The department offers large material of both congenital and acquired diseases of the heart; over 500 cases of congenital malformations of the heart have been studied in the past three years. There is a complete department of angiocardiography and catheterization. Salary is commensurate with experience. Information may be obtained from Dr. Rowine H. Brown, assistant medical superintendent, Children's Division of the Cook County Hospital, 700 South Wood Street, Chicago 12.

Chest Physicians and Tuberculosis Society Meeting.—A joint meeting of the Illinois Chapter of the American College of Chest Physicians and the Chicago Tuberculosis Society will be held at the Congress Hotel December 15. Dinner at 6:30 p. m. will be followed by the scientific program at 8:00 p. m. "The Use of ACTH and Cortisone in Asthma" will be discussed by Drs. Samuel M. Feinberg, Thurman B. Dannenberg, Alan R. Feinberg and Saul Malkiel, all of Northwestern University. "Clinical and Laboratory Effects of ACTH and Cortisone on Patients with Pulmonary Tuberculosis" will be presented by Dr. Smith Freeman of Northwestern University and Dr. Jennings Fershing, resident physician at Hines Hospital. All physicians are invited to attend.

INDIANA

University Appointment.—Dr. Paul R. Lurie, research fellow of the National Heart Institute, Bethesda, Md., has been appointed assistant professor of pediatrics at the Indiana University School of Medicine, Bloomington-Indianapolis. Dr. Lurie joined the staff of the Yale University School of Medicine, New Haven, Conn., after military service during World War II. He has been at the national institute for the past two years.

Course for Medical Librarians.—Indiana University is offering a new Bachelor of Science degree in Medical Record Library Science, providing three years of study on the Bloomington campus and one year's study at the university medical center in Indianapolis. The course, to be directed by Miss Gertrude Gunn, head of the department of medical records at the medical center, will qualify graduates for positions as medical record librarians in hospitals where detailed records are maintained on each patient.

KENTUCKY

Clinic Dedicated to Retired Dean.—The remodeled west wing of the Louisville General Hospital is now officially known as the John Walker Moore Clinic in honor of Dr. Moore, retired dean of the University of Louisville School of Medicine. At the dedicatory services Dr. Moore was paid tribute by his friends and associates.

Medical Scholarship Fund.—The Board of Trustees of the Rural Kentucky Medical Scholarship Fund held a meeting October 29 at Mammoth Cave and approved eight students for financial assistance to further their medical education, if and when they obtain admission to accredited medical schools. Two students already in medical school were granted loans. The money available for loans approximating $150,000 was raised by subscription in 1946 and 1947. Up to the present time 92 loans totaling $63,900 have been granted to 49 students. Of the 13 graduates, five are interns, seven are practicing in rural communities and one is in the Navy.

MAINE

State Journal Honors Dr. Higgins.—The October issue of the *Journal of the Maine Medical Association* is dedicated to Dr. Everett C. Higgins of Lewiston, who for the past 30 years has practiced medicine in central Maine and has contributed greatly to the development of the Central Maine General Hospital. Earlier the hospital honored him at a birthday dinner.

MARYLAND

Dr. Sayers Joins Baltimore Health Department.—Dr. Royd R. Sayers, formerly a medical director in the U. S. Public Health Service, was appointed on September 20 to a new part time post in the Baltimore City Health Department that was established by the Board of Estimates to strengthen the city's control of occupational diseases. Dr. Sayers comes to Baltimore after being on the U. S. Public Health Service staff since 1913. From 1940 to 1947 he was assigned to serve as director of the Bureau of Mines.

MASSACHUSETTS

Health Protection Clinic.—Of the first 2,000 "apparently healthy" persons screened at Boston's Health Protection Clinic, a total of 1,266, or 63 per cent, were referred to their family physicians for both known and unknown conditions, and of this total, 1,117 were referred for previously unknown physical defects. The clinic was opened at the New England Center Hospital in Boston in December 1949. Sponsored by the Massachusetts Medical Society and financed by the state health department, the clinic provides free screening for heart disease, cancer and high blood pressure. Dr. Claire F. Ryder, Boston, state health department, is administrator Of the 1,730 conditions discovered at the clinic, the major category was obesity, defined as being more than 20 per cent above the ideal weight. Poor vision accounted for 212 defects. Among the more serious ailments were heart disease (159 cases), diabetes (47), tuberculosis (17), syphilis (8), high blood pressure (173), kidney disease (10) and hearing defects (140). Reopened on October 3, the health protection clinic is now receiving requests for appointments. Information may be obtained from Dr. Claire F. Ryder, New England Center Hospital, Boston 11. The telephone number is Liberty 2-2855.

MISSOURI

Grant for Cancer Teaching and Research.—Washington University School of Medicine, St. Louis, in October received a check for $39,000 from the American Cancer Society for continuation of the program of cancer teaching and research through Aug. 31, 1951. In addition to the institutional grant, Washington University is the recipient of grants-in-aid to the amount of $36,992 and fellowships totaling $5,800, bringing the total amount of financial assistance of the American Cancer Society to Washington University this year to $81,792.

University Appointment.—Dr. Walter G. Rice has been appointed assistant professor of pathology and associate director of clinical pathology for the St. Mary's Group of Hospitals of the Saint Louis University School of Medicine. Dr. Rice will work with Dr. Henry Pinkerton, director of the department of pathology at Saint Louis University, and Dr. Raymond O. Muether, director of clinical pathology at the St. Mary's Group of Hospitals. Dr. Rice comes to the university from Texas, where he was assistant director of laboratories at Baylor University Hospital and instructor in clinical pathology at Southwestern Medical School of the University of Texas, Dallas. After five years' war service he was assistant to the national director of the Canadian Red Cross and Blood Transfusion Service.

NEW JERSEY

Personal.—Dr. Nolan D. C. Lewis, director of the New York State Psychiatric Institute and Hospital, New York, has been named chairman of the Committee on Mental Health for the State Charities Aid Association.

Executive Secretary to Head Medical Service Plan.—Mr. James E. Bryan, Trenton, who has been the Medical Society of New Jersey executive secretary since 1947, has been appointed administrator of the Medical-Surgical Plan of New Jersey, the "Blue Shield" medical care plan, effective November 1. He will have charge of the administrative details of the plan as well as its relations with physicians and the public in all nonprofessional matters. Mr. Bryan has been engaged in medical society executive, editorial and public relations work for 18 years in New York and New Jersey.

NEW YORK

Whipple Auditorium Dedicated.—More than 250 graduates of the University of Rochester School of Medicine and Dentistry attended ceremonies at Strong Memorial Hospital October 12 dedicating an amphitheater of the medical school as "George H. Whipple Auditorium." Dr. Whipple has been dean of the school since it was founded 25 years ago. The ceremonies were part of a three day medical program of the school's alumni association.

Preconception Clinic.—A new clinic for the "preconception" treatment of couples who have histories of unsatisfactory pregnancies has been established at the Syracuse Dispensary. Three categories of patients are being treated: (1) patients with histories of previous premature labors, (2) chronic aborters and (3) patients with histories of congenitally defective offspring. Both husband and wife are thoroughly studied to ascertain correctable pathological conditions. Indicated therapy will then be instituted to correct such conditions prior to conception. It is hoped that this pilot study will lead to methods that may be generally employed in private practice. The clinic is a joint venture of Syracuse University College of Medicine and the Syracuse Department of Health. It is sponsored by the Bureau of Maternal and Child Health of the New York State Department of Health. It has the approval of the Maternal Welfare and Infant and Child Health Committees of the Onondaga County Medical Society as well as the Central New York Obstetrical and Gynecological Society. Miss Nancy Cochrane, tenth floor, Memorial Hospital, is in charge of appointments.

New York City

Dr. Rusk Gives Hauswirth Lecture.—The second annual Louis Hauswirth Lecture in Medicine, sponsored by the Beth David Hospital Alumni Association, was given by Dr. Howard A. Rusk, director of the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, November 29 at the Beth David Hospital, on "A Dynamic Approach to Medicine's Number One Problem."

New York Diabetes Association.—At its annual meeting on November 10 the New York Diabetes Association made Dr. Henry Dolger of Mount Sinai Hospital its president, Dr. Herbert Pollack, secretary, and Mr. David Handman, treasurer. The association provided a one month vacation for 154 children at its camp last summer; 20 of the staff also were diabetic. This year four new cabins, accommodating 10 children and two counselors each, were constructed for girls. Many improvements were made, including new docks for the boats and canoes, a new medical building for the administration of insulin and a new laundry building.

Grant to Train Plastic Surgeons.—A grant of $27,000 from the Milbank Memorial Fund to train plastic surgeons has been made to New York University-Bellevue Medical Center. This is the last of the fund's several grants to the Medical Center intended to promote the rehabilitation of handicapped persons. The plastic surgery grant will make possible three fellowships for the training of young surgeons in the plastic surgery unit, under the direction of Dr. John M. Converse. In its research and training program the plastic surgery unit is working in close association with the medical center's Institute of Physical Medicine and Rehabilitation, to which the Milbank Memorial Fund has also made contributions.

Physicians Art Club.—At the seventeenth annual dinner meeting of the New York Physicians Art Club, November 6, Dr. Benjamin F Morrow was elected president, Dr. Solomon Fineman vice president and Dr. William Snow secretary-treasurer. It is hoped that many more physicians will participate in the activities of the club. The recent exhibition of work of the art club members, held at the Academy of Medicine, was of exceptionally high caliber. Oils, watercolors, sculpture and photography were the main mediums represented. Membership is open to all New York physicians. Those interested may join by paying $5 dues to the secretary-treasurer, Dr. William Snow, 941 Park Avenue, New York.

House Staff Educational Program.—Dr. Frode Jensen has been appointed director of the House Staff Educational Plan of the New York Committee on the Study of Hospital Internships and Residencies, which is sponsored by all six medical schools in New York. He succeeds Dr. Stuart W. Cosgriff in the educational program developed for nonteaching hospitals by the committee through a grant from the Commonwealth Fund. The House Staff Educational Plan, endorsed by the New York Academy of Medicine and the Coordinating Council of the Medical Societies of all the counties of New York City, now is self sustaining and continues to provide a strong educational stimulus for the training of staff members in the field of medicine in those hospitals not affiliated with the local medical schools. Dr. Jensen, newly appointed assistant dean of New York University Post-Graduate Medical School, recently completed three years as director of the Office of Graduate and Postgraduate Medical Education at the University of Colorado School of Medicine, Denver.

OHIO

Dr. Ransohoff Retires.—After 45 years of volunteer teaching in the University of Cincinnati College of Medicine, Dr. J. Louis Ransohoff has retired under the university's automatic retirement rule. He will remain in practice. The university board of directors has granted him the honorary faculty title of clinical professor emeritus of surgery.

Taylor Memorial Fund.—A committee has established the Lester H. Taylor Memorial Fund for the purpose of receiving gifts from Dr. Taylor's friends. The fund is directed toward strengthening the financial security of the museum. Friends and patients have contributed about $30,500, which will eventually be devoted to an appropriate memorial to the late Dr. Taylor, the museum's first president.

VERMONT

University Appointments.—Dr. William E. Brown, dean of the University of Vermont College of Medicine, Burlington, has been appointed to serve as staff associate with the Survey of Medical Education, Inc., on a part time basis. He will remain at the college. Dr. Theodore H. Harwood, associate professor of medicine at the college, has been appointed assistant dean. Dr. George A. Schumacher, New York, has joined the faculty of the college of medicine as professor of neurology. He was formerly on the faculty of Columbia University College of Physicians and Surgeons, New York.

WISCONSIN

Cerebral Palsy Clinic.—The Cerebral Palsy Clinic of the Medical Society of Milwaukee County opened in October in offices in the Goodwill Industries Building in Milwaukee. The medical director is Dr. Raymond C. Waisman. The clinic is open Monday morning, Wednesday afternoon and Friday morning. An occupational and a physical therapist are full time employees. They came to the clinic after taking a specialized postgraduate course of cerebral palsy training with Dr. Winthrop M. Phelps at Cockeysville, Md.

PUERTO RICO

Annual Medical Meeting.—The annual assembly of the Medical Association of Puerto Rico will be held December 12-17 with headquarters at the association building, Avenida Fernández Juncos-Parada 19, Santurce, under the presidency of Dr. A. Oliveras-Guerra. The first day will be devoted to papers on cancer. Guest speakers are as follows:

Brewster Miller, New York, Opening Remarks.
C. Langdon Parsons, Boston, Present Concepts of Cancer of the Cervix.
Juan A. Del Regato, Colorado Springs, Colo., Indications for Radiotherapy of Cancer.
Grantley W. Taylor, Boston, Management of Regional Lymph Node Metastases.
Wilburt C. Davison, Durham, N. C., Cancer in Childhood.
Douglas H. Sprunt, Memphis, Tenn., Evaluation and Application of Tests for the Diagnosis of Cancer.

The program is being given under the auspices of the Puerto Rico Chapter of the American Cancer Society, the insular department of health and the association. The Wednesday morning program will be a symposium on the Practical Applications of the Newer Drugs, ACTH and Cortisone.

At the Thursday session, planned in cooperation with the Puerto Rico Chapter of the American College of Chest Physicians, the invited speakers will be:

Pedro Domingo, Havana, Cuba, Newer Aspects on the Defense of the Body Against Bacterial Infection.
Louis H. Clerf, Philadelphia, The Esophagus and Its Diseases.

Other guest speakers at the sessions include:

Frank H. Lahey, Boston, Management of Diseases of the Thyroid.
Leo Meyer, New York, Medical Aspects of Nuclear Energy.
L. Kraeer Ferguson, Philadelphia, Surgical Aspects of Ulcerative Colitis and Regional Enteritis.
Henry L. Bockus, Philadelphia, Treatment and Prognosis in Hepatic Cirrhosis.
Leonard J. Piccoli, Ph.D., New York, Recent Developments in Vitamin B_{12} Therapy.
Paul Gyorgy, Philadelphia, News from the Nutritional Front.
Howard A. Rusk, New York, Rehabilitation in Chronic Diseases.
Lewis C. Scheffey, Philadelphia, Diagnosis and Management of Pelvic Malignancy.
Reed M. Nesbit, Ann Arbor, Mich., Results of Endocrine Therapy of Prostatic Cancer: Diagnostic Implication of Serum Phosphatase Determinations.

The annual banquet and dance will be held Saturday at 8:00 p. m. at the Hotel Condado. There will be technical exhibits.

GENERAL

Postgraduate Medical Studies in Britain.—Dr. Julian Landman of London, a leading authority on British postgraduate medical education, will be in the United States and Canada in December and January. His address in New York will be the Waldorf-Astoria Hotel, during December. American doctors contemplating postgraduate study in Britain are advised to contact Dr. Landman.

ACTH Conference.—The second clinical conference on pituitary adrenocorticotropic hormone, planned by Armour and Company, Chicago, is being held at the Palmer House, Chicago, December 8-9. This conference brings together some 300 men and women who have been testing the hormone in various disease conditions and seeking data on its mode of action. A total of 95 papers will be presented. The reports come from leading clinics in all parts of the United States and from England, France, Canada, Mexico and Australia.

Dr. Cori Wins Borden Award.—Dr. Gerty F. Cori, Washington University School of Medicine, St. Louis, received the Borden Foundation award for outstanding medical research at the meeting of the Association of American Medical Colleges at Lake Placid, New York, in October. The award goes annually to a staff member of an American medical college for outstanding and significant work in medical research. Dr. Cori received it for her discovery of a new enzyme. She and her husband, Dr. Carl T. Cori, were Nobel Prize winners in 1947 for their work in carbohydrate chemistry.

International Symposium on Steroids.—A symposium on steroids will be held in Cuernavaca, Mexico, January 15-18, under the auspices of a committee of industrial and institutional scientists. Membership is limited by invitation to persons nominated either by the committee from the United States or by the Mexican subcommittee. The proceedings of the conference will be recorded and will be published as rapidly after the close of the sessions as possible.

The sponsoring committee comprises Dr. Konrad Dobriner, Sloan-Kettering Institute for Cancer Research, New York; Dr. Paul Holbrook, Tucson, Ariz.; Gregory G. Pincus, Sc.D., Worcester Foundation for Experimental Biology, Shrewsbury, Mass.; Dr. Edward C. Reifenstein Jr., Research Institute, Oklahoma Medical Research Foundation, Oklahoma City; I. V. Sollins, Chemical Specialties Co., Inc., New York, and Syntex S. A., México, D. F. The invited group includes clinical workers in rheumatology, cancer and other diseases, as well as experimental workers in the fields of biology, biochemistry and pharmacology.

Prize in Public Health Methodology.—Annual recognition in the form of a $500 award and a plaque will be made available next year for outstanding work in methodology research. The prize, to be known as the Kimble Glass Methodology Research Award, is to be given by the Conference of State and Provincial Public Health Laboratory Directors and is endowed by Kimble Glass, Division of Owens-Illinois Glass Company. Its purpose is to give recognition and reward to a person who has contributed outstandingly in developing a new or better method of procedure in the field of public health work. Methodology research has to do with the devising of methods of applying scientific knowledge in the solution of medical and public health problems. Selection of the outstanding work and awarding of the prize will be under the direction of an award's committee, which includes Samuel R. Damon, Ph.D., director of laboratories, Indiana State Department of Health, Indianapolis; Dr. Malcolm Merrill, director of laboratories, California State Department of Health, Berkeley; Francis C. Lawler, Sc.D., director of laboratories, Vermont State Department of Health, Burlington; Martin Frobisher, Sc.D., chief of bacteriology, Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga.; Dr. Geoffrey Edsall, professor of bacteriology, Boston University School of Medicine, and Dr. Albert V. Hardy, director of laboratories, Florida State Board of Health, Jacksonville.

Inter-American Congress on Brucellosis.—The Third Inter-American Congress on Brucellosis, held in Washington, D. C., November 6-10, was attended by nearly 200 delegates and observers from 22 countries and possessions, including 10 countries of Latin America, and from 28 states and the District of Columbia in the United States, as well as from two specialized agencies of the United Nations. The delegates to the congress discussed developments in the diagnosis of brucellosis and its prevention through vaccination of animals. Although only 4,000 to 6,000 cases of human brucellosis are reported annually in the United States, it is estimated by experts that there are probably 40,000 to 100,000 new cases of brucellosis annually in the United States. Because of the lack of standardization of diagnostic technics and the many forms that the disease may take, the great majority of cases are not at present discovered It was announced that the two United Nations agencies concerned with the problem of brucellosis, WHO and FAO, have organized brucellosis centers in eight countries in Europe, South Africa and Australia and are planning similar centers in the United States, Mexico, two South American countries and India

Officers elected at the congress are Dr Wesley W Spink, Minneapolis, president, and the following vice presidents Dr Enso Criscuola, Argentina, Dr Maximiliano Ruiz Castaneda, Mexico, Dr Genesio Pacheco, Brazil, Leslie M Hutchings, D V M, Lafayette, Ind, C H Mitchell, Canada, and Dr. Birdsall N Carle, Bethesda, Md

The first international Expert Panel on Brucellosis was held November 11-13 It was arranged jointly by FAO and WHO and was composed of 26 members and six observers representing 11 countries Sir Weldon Dalrymple-Champneys, deputy chief medical officer of the United Kingdom Ministry of Health, London, was elected chairman Dr Castaneda, of the General Hospital in Mexico City, and Dr Hutchings, department of veterinary medicine, Purdue University, Lafayette, Ind, were elected vice chairmen

CORRECTION

Pancreatic Glucagon.—In the abstract on this subject in The Journal of Nov 25, 1950, page 1131, the second word in line 23 and the first word in line 24 should have been "sugar," not "pressure"

National Advisory Neurological Diseases and Blindness Council.—The Scientific Reports Branch of the National Institutes of Health, Bethesda, Md, writes that owing to an error on their part, Dr Percival Bailey, of the University of Illinois Medical College, was announced as a member of this council This announcement was published in The Journal Nov 25, 1950, page 1100

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS

Alabama Montgomery, June 26 28 Sec Dr D G Gill, 519 Dexter Ave Montgomery

Arizona * *Examination* Phoenix, Jan 17 19 *Reciprocity* Phoenix, Jan 20 Sec, Dr J H Patterson, 316 W McDowell Road, Phoenix

Arkansas * *Eclectic* Little Rock, June 7 Sec, Dr C H Young, 1415 Main St, Little Rock

Colorado * Denver Jan 3 5, 1951 Exec Sec, Mrs B M Hudgens 831 Republic Bldg, Denver

Connecticut * *Examination* Hartford March 13 14 Sec to the Board Dr Creighton Barker, 160 St Ronan St New Haven *Homeopathic* Derby, March 13 14 Sec Dr Donald A Davis 38 Elizabeth St Derby

Delaware Dover Jan 9 11 *Reciprocity* Jan 18 1951 Sec, Dr J S McDaniel 229 S State St, Dover

District of Columbia * *Reciprocity* Washington Dec 11 Sec, Dr Daniel L Seckinger, 4130 E Municipal Bldg Washington

Georgia Atlanta, June Augusta June Sec Mr R C Coleman, 111 State Capitol Atlanta

Guam The Commission on Licensure will meet whenever a candidate appears *or submits his credentials* Ex Sec, Dr *John* Y Battenfield, Agana

Hawaii Honolulu, Jan 8 11, 1951 Sec, Dr I L Tilden, 1020 Kapiolani St Honolulu

Idaho Boise Jan 8, 1951 Sec, Mr Armand L Bird 305 Sun Bldg Boise

Illinois Chicago Jan 9 11 Superintendent of Registration, Mr Charles F Kervin Capitol Bldg Springfield

Indiana Indianapolis, June 20 22 Exec Sec, Miss Ruth V Kirk, 1138 K of P Bldg Indianapolis 4

Kansas Topeka Dec 13 14 Sec, Dr O W Davidson 772 New Brotherhood Bldg Kansas City

Kentucky *Examination* Louisville Dec 11 13 Sec, Dr Bruce Underwood 620 South Third St Louisville

Maine Portland March 12 13 Sec, Dr Adam P Leighton, 192 State St Portland

Maryland Baltimore, June 19 22 Sec, Dr Lewis P Gundry, 1215 Cathedral St Baltimore 1

Massachusetts Boston Jan 23 26, 1951 Sec, Dr Geo R Schadt, 37 State House Boston

Minnesota * Minneapolis Jan 16 18 Sec, Dr J F Du Bois, 230 Lowry Medical Arts Bldg, St Paul 2

Mississippi Jackson December Asst Sect Dr R N Whitfield, Jackson 113

Missouri *Examination* Jefferson City, Feb 19 21 *Reciprocity* Jefferson City, Feb 12 Ex Sec, Mr John A Hailey, Box 4, Jefferson City

Montana Helena April 2 4 Sec, Dr S A Cooney, 214 Power Block Helena

Nebraska * June 1951 Director, Mr Oscar F Humble, Room 1009, State Capitol Bldg, Lincoln

Nevada Carson City, Feb 5 Sec, Dr George H Ross, 112 Curry St Carson City

New Hampshire *Examination* Concord, March 14 15 Sec, Dr John S Wheeler, 107 State House, Concord

New Jersey *Examination* Trenton, June 19 22 Sec, Dr E S Hallinger, 28 W State St, Trenton

New Mexico * Santa Fe, April 10 11 Sec, Dr Charles J McGoey, Coronado Bldg Santa Fe

New York *Examination* Albany, Buffalo Syracuse and New York City, Jan 30 Feb 2 Sec Dr Jacob L Lochner, 23 S Pearl St, Albany

North Carolina *Reciprocity* Winston Salem, Jan 15 Sec, Dr Joseph J Combs 419 Professional Bldg, Raleigh

North Dakota Grand Forks Jan 3 6 Sec, Dr C J Glaspel, Grafton

Ohio Columbus, Dec 13 15 Sec, Dr H M Platter, 21 W Broad St Columbus

Oklahoma * *Examination* Oklahoma City, June 6 7 Sec, Dr Clinton Gallaher 813 Braniff Bldg Oklahoma City

Oregon * Portland January 4 6 Sec, Mr Howard I Bobbit, 608 Failing Bldg, Portland 4

Pennsylvania Philadelphia January 1951 Acting Secretary, Mrs M G Steiner, 351 Education Bldg, Harrisburg

Puerto Rico *Examination* Santurce, March 6 Sec, Mr Luis Cueto Coll Box 3717 Santurce

Rhode Island * Providence Jan 4 5 Chief, Division of Profesional Regulation Mr Thomas B Casey, 366 State Office Bldg, Providence

South Carolina *Reciprocity* Columbia, Jan 2, Feb 6, March 5, April 2 Sec, Dr N B Heyward, 1329 Blanding St, Columbia

South Dakota * Jan 15 16 Sioux Falls South Dakota Sec, Dr. C E Sherwood 109 Center St, West Madison

Tennessee * *Examination* Memphis, Dec 21 22 Sec, Dr H W. Qualls 1635 Exchange Bldg Memphis 3

Utah Salt Lake City, July 1951 Dir, Mr Frank E Lees, 324 State Capitol Bldg, Salt Lake City 1

Vermont *Burlington February 1951* Sec, *Dr F J Lawliss,* Richford

Washington * Seattle January 1951 Sec, Mr Edward C Dohm, Department of Licenses Olympia

West Virginia Charleston Jan 8 10 Sec, Dr N H Dyer, State Capitol Charleston 5

Wisconsin * River Falls Jan 9 11, 1951 Sec Dr C A Dawson, Tremont Bldg River Falls

Wyoming *Examination* Cheyenne, Feb 5 Sec, Dr Franklin D. Yoder Capitol Bldg, Cheyenne

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona *Examination* Tucson, Dec 19 Sec, Mr Francis A Roy, Room 423 University of Arizona Tucson

Connecticut *Examination* Feb 10 Executive Asst State Board of Healing Arts Mr M G Reynolds, 110 Whitney Ave, New Haven 10

District of Columbia *Examination* April 1951 Sec, Dr Daniel L Seckinger, 4130 E Municipal Bldg, Washington

Florida *Examination* Gainesville, June 2 Sec, Mr M W Emmel, University of Florida Gainesville

Iowa *Examination* Des Moines, Jan 9 Sec, Dr Ben H Peterson, Coe College Cedar Rapids

Michigan *Examination* Detroit and Ann Arbor, Jan 12 13 Sec, Miss Eloise LeBeau 101 No Walnut St, Lansing 15

Minnesota *Examination* Minneapolis Jan 2 3 Sec Dr Raymond N Bieter, 105 Millard Hall, University of Minnesota Minneapolis

Nebraska *Examination* Omaha Jan 9 10 Dir, Mr Oscar F. Humble Room 1009, State Capitol Bldg, Lincoln 9

New Mexico *Examination* Santa Fe, Dec 10 Sec, Mrs Marguerite Cantrell P O Box 1522, Santa Fe

Oklahoma *Examination* Oklahoma City, March 27 Sec, Dr Clinton Gallaher 813 Braniff Bldg, Oklahoma City

Rhode Island *Examination* Providence Feb 14 Chief, Division of Professional Regulation, 366 State Office Bldg, Providence

Tennessee *Examination* Memphis, Dec 27 28 Sec, Dr O W. Hyman 874 Union Avenue, Memphis

Texas *Examination* Latter Part of April Sec, Bro Raphael Wilson, 306 Nalle Bldg Austin

Washington Seattle, January 1951 Sec, Mr Edward D Dohm, Department of Licenses Olympia

Wisconsin *Examination* Madison, April 7. Sec, Mr W H Barber, Scott and Watson Sts, Ripon

---

* Basic Science Certificate required

Coming Medical Meetings

American Academy of Orthopaedic Surgeons, Palmer House, Chicago, Jan 27 Feb 1 Dr Harold B Boyd, 122 S Michigan Ave, Chicago 3, Secretary

American Society for Surgery of the Hand, Palmer House, Chicago, Jan 26 Dr Joseph H Boyes 1401 S Hope St, Los Angeles 15, Secretary

International Post Graduate Medical Assembly of Southwest Texas, Municipal Auditorium, San Antonio Jan 23 25 Dr John H Hinchey, P O. Box 2445 San Antonio 6, Secretary

Puerto Rico Medical Association of, Santurce Dec 13 17 Dr Victor J Montilla, P O Box 3866 Santurce 29, Secretary

Radiological Society of North America Palmer House, Chicago Dec. 10 15 Dr Donald S Childs, 713 E Genesee St, Syracuse 2, N Y., Secretary

DEATHS

MacConnell, John Wilson ⊕ Davidson, N. C.; born in McConnellsville, S. C., Jan. 11, 1878; University of Maryland School of Medicine, Baltimore, 1907; formerly vice president of the Federation of State Medical Boards of the United States and member of the board of medical examiners; in 1908 joined the faculty of Davidson College, where he organized the department of biology and where he served as professor of biology, professor of physiology and hygiene and director of the student health service; member of the Southern Medical Association, Military Order of World War, Sigma Alpha Epsilon, Nu Sigma Nu, Phi Beta Kappa and Omicron Delta Kappa; at one time third vice president of the Association of Surgeons of the Southern Railway System; a first lieutenant in the medical corps of the U. S. Army on the Mexican border in 1916; later served with the American Expeditionary Forces during World War I; affiliated with Lowrance Hospital in Mooresville and the Charlotte Eye, Ear, Nose and Throat Hospital in Charlotte; died September 26, aged 72, of uremia.

Bryan, Alanson Leroy ⊕ Medical Director, Captain, U. S. Navy, retired, San Diego, Calif.; born March 4, 1892, in Dixon, Iowa; Vanderbilt University School of Medicine, Nashville, Tenn., 1916; was first appointed assistant surgeon in the Naval Reserve in 1916 and was commissioned lieutenant (jg) in the medical corps of the U. S. Navy in April 1917, when he reported for active duty; served at many hospitals in the United States and was medical officer in command of the Naval Hospital at Dublin, Ga., from 1944 through 1945; served on the *USS Fulton, Memphis, Procyon, Chaumont, Medusa, Maryland, Lafayette, Massachusetts* and *Relief;* for services performed aboard the *USS Relief* from December 1942 to March 1944 and as medical officer in command of the Naval Hospital at Dublin was awarded a letter of commendation from the Secretary of the Navy; fellow of the American College of Surgeons; retired Jan. 1, 1947 for physical disability; died in the U. S. Naval Hospital October 12, aged 58, of cerebral hemorrhage and malignant hypertension.

Mentzer, Stanley Herman, San Francisco; born in San Francisco April 9, 1897; University of California Medical School, San Francisco, 1923; entered the Mayo Foundation in Rochester, Minn., as a fellow in surgery in July 1923; left the foundation in July 1926; formerly assistant clinical professor of surgery at the University of California Medical School; specialist certified by the American Board of Surgery; past president and formerly secretary of the San Francisco County Medical Society; fellow of the American College of Surgeons; member of the Royal Society of Tropical Medicine and Hygiene, American Society of Tropical Medicine, the Pan American Medical Association, Osler Medical Association and the International Association of Medical Museums; served on the staffs of San Francisco, St. Joseph's and Hahnemann hospitals; died October 6, aged 53, of cerebral hemorrhage and hypertension.

Patek, Arthur Jackson ⊕ Milwaukee; born in Milwaukee Nov. 11, 1868; University of Pennsylvania Department of Medicine, Philadelphia, 1892; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; past president of the State Medical Society of Wisconsin, which in 1935 presented its award to him for distinguished service to the society, Medical Society of Milwaukee County and the Milwaukee Academy of Medicine; formerly preceptor in charge, University of Wisconsin Medical School; served during World War I; affiliated with Columbia, Milwaukee and Mount Sinai hospitals; founder and for several years editor of the *Wisconsin Medical Journal;* director of the Milwaukee Orchestral Association; died in Columbia Hospital October 12, aged 81, of monocytic leukemia.

Lewey, Frederic Henry ⊕ Philadelphia; born in Berlin, Germany, Jan. 28, 1885; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Germany, 1908; associate professor of neuropathology and research associate in audiology at the University of Pennsylvania School of Medicine and professor of neuroanatomy at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; specialist certified by the American Board of Psychiatry and Neurology; member of the American Neurological Association, American Association of Neuropathologists and the Association for Research in Nervous and Mental Diseases; served during World Wars I and II; affiliated with the Hospital of the University of Pennsylvania; died in Pennsburg October 5, aged 65, of coronary thrombosis.

Dumas, Alexander George, Minneapolis; born in Minneapolis May 11, 1896; Creighton University School of Medicine, Omaha, 1921; clinical associate professor of psychiatry at the University of Minnesota Medical School; member of the American Psychiatric Association; formerly associated with the Veterans Administration Clinic; recently resigned as chairman of the governor's mental health advisory committee of which he had been one of the founders; served as medical director, Minnesota Mental Hygiene Society; formerly consultant to municipal courts of Hennepin County; at one time chief of staff of Glenwood Hills and Homewood hospitals; died in University Hospital October 2, aged 54, of hypertension and cerebral vascular accident.

Bottorff, Melvin Kinch ⊕ Lake Village, Ark.; University of Arkansas School of Medicine, Little Rock, 1932; served during World War II; alderman; died in Helena (Ark.) Hospital September 26, aged 44, of uremia, chronic nephritis and malignant hypertension.

Bowser, Willard Parker, Berea, Ohio; Western Reserve University School of Medicine, Cleveland, 1918; served on the staffs of St. John's and Deaconess hospitals in Cleveland and Berea Community Hospital; died September 23, aged 56, of cerebral hemorrhage.

Carrell, John B., Hatboro, Pa.; Jefferson Medical College of Philadelphia, 1876; member of the American Medical Association and in 1915 a member of the House of Delegates; at one time served as school director; member of the Montgomery County Historical Society; for many years editor of the *Bucks County Medical Bulletin;* in 1946 awarded the Good Citizenship Medal of the Philadelphia Chapter of the Sons of the American Revolution; died in the Abington (Pa.) Memorial Hospital September 20, aged 99, of injuries received in a fall.

Carter, Albert Howard, Oak Park, Ill.; Jenner Medical College, Chicago, 1906; member of the American Medical Association; served during World War I; died October 8, aged 66, of cardiac decompensation and an accidental fall.

Chapman, George Little, Toledo, Ohio; Miami Medical College, Cincinnati, 1899; served overseas during World War I; formerly on the staff of Flower Hospital; died in Toledo Hospital October 1, aged 78, of coronary occlusion.

Coffey, Charles James ⊕ Milwaukee; University of the City of New York Medical Department, 1894; clinical professor of otolaryngology emeritus at Marquette University School of Medicine; an Associate Fellow of the American Medical Association; for many years assistant city health commissioner; served as a member of the school board, of which he had been past president; past president of the Marquette University Alumni Association; died September 30, aged 80, of coronary thrombosis and arteriosclerosis.

Cox, Thomas Edward, Washington, D. C.; University of West Tennessee College of Medicine and Surgery, Memphis, 1916; served during World War I; died in Freedmen's Hospital October 7, aged 58, of intraventricular hemorrhage and hypertension.

Craft, Harold Albert, Washington, D. C.; George Washington University School of Medicine, Washington, D. C., 1937; member of the American Medical Association; at one time on the faculty of his alma mater; certified by the National Board of Medical Examiners; affiliated with George Washington University, Columbia, Doctors, Emergency, Sibley and Homeopathic hospitals; died September 27, aged 48, of coronary thrombosis.

Daniels, Melvin Robert Micheal, Yonkers, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1944; certified by the National Board of Medical Examiners; served during World War II; interned at the Metropolitan Hospital in New York and served a residency in pathology at the Veterans Administration Hospital in New York; died September 23, aged 33, when a small seaplane he was piloting crashed.

Darnall, Moses Hubbard, Washington, D. C.; George Washington University School of Medicine, Washington, D. C., 1907; served during World War I; died in Veterans Administration Hospital, Perry Point, Md., September 27, aged 68, of coronary sclerosis.

Davis, Irwin Grant ⊕ Rushford, Minn.; Rush Medical College, Chicago, 1914; for many years health officer of Peterson and Rushford; served during World War I; on the staff of Cottrel Maternity Hospital; died September 29, aged 62, of ruptured abdominal aortic aneurysm.

⊕ Indicates Fellow of the American Medical Association.

Day, Clark W. ⊕ Indianapolis; Physio-Medical College of Indiana, Indianapolis, 1901; served as police surgeon; formerly member of the board of health; during World War II cited by the President for his work as medical examiner for the Selective Service; member of the staffs of St. Vincent's Hospital and Methodist Hospital, where he died September 23, aged 74, of hypertension and arteriosclerotic heart disease.

De Korven, Victoria K., St. Louis; Homeopathic Medical College of Missouri, St. Louis, 1909; St. Louis College of Physicians and Surgeons, 1911; died in St. Vincent's Sanitarium September 27, aged 80, of primary atypical pneumonia, following a fractured hip received in a fall.

Dixon, Charles Leonard, Renton, Wash.; Jefferson Medical College of Philadelphia, 1895; member of the American Medical Association; health officer of Renton; served as county health officer; director of the Peoples National Bank; died September 23, aged 79, of injuries received in an automobile accident.

Dorne, Maurice ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1916; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology; associate in dermatology at Northwestern University Medical School; served during World War I; affiliated with Mount Sinai Hospital and Alexian Brothers Hospital, where he died September 24, aged 57, of cerebral hemorrhage.

Eisenberg, David, New York; Long Island College Hospital, Brooklyn, 1908; affiliated with Sydenham and Harlem hospitals; died in Mount Sinai Hospital September 18, aged 64, of coronary occlusion.

Erpelding, John Kenneth, Saginaw, Mich.; Jefferson Medical College of Philadelphia, 1921; served as chief of the Civilian Dispensary, Brookley Air Force Base, Mobile, Ala.; recently appointed to the staff of Saginaw County Hospital; died in St. Mary's Hospital September 18, aged 57, of peritonitis and bronchogenic carcinoma.

Ford, James Arthur, Orlando, Fla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1916; during World War II served as medical examiner for the Selective Service System and was the recipient of several certificates of merit, including a Congressional award; died in Johns Hopkins Hospital, Baltimore, September 23, aged 58.

Foster, Ruth ⊕ New York; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1931; member of the American Psychiatric Association; died September 29, aged 56, of carcinoma.

French, Oscar Witters ⊕ Coalville, Utah; Rush Medical College, Chicago, 1893; formerly vice president of the Utah State Medical Association, of which he had been honorary president since September 1948; served as mayor; died September 16, aged 82, of thrombosis of the abdominal aorta.

Fretz, John Lewis ⊕ Seattle; Rush Medical College, Chicago, 1934; an associate of the International College of Surgeons; member and past president of the Seattle Academy of Surgery; member of the Washington State Obstetrical Association; member of the U. S. Committee for the World Medical Association; served on committee for health, Seattle Municipal League; affiliated with Seattle General Hospital and Virginia Mason Hospital; killed when his private plane crashed at Renton Airport September 22, aged 51.

Galligan, Edward Joseph, Taunton, Mass.; College of Physicians and Surgeons, Baltimore, 1896; member of the American Medical Association; formerly city physician; affiliated with Morton Hospital; died September 25, aged 81, of arteriosclerotic heart disease.

Garland, Harrie Sanborn, Pasadena, Calif.; University of Nebraska College of Medicine, Omaha, 1905; died September 21, aged 67, of coronary thrombosis.

Girdwood, John ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1894; served overseas during World War I; for many years medical examiner for the City Service Commission; died September 25, aged 79, of heart disease.

Grayson, William Friar, Granite City, Ill.; St. Louis College of Physicians and Surgeons, 1898; member of the American Medical Association; formerly state health officer; served during World War I; affiliated with St. Elizabeth Hospital; died September 20, aged 76, of uremia.

Hartzell, Harry Wallace, National City, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; died in Paradise Valley Sanitarium and Hospital September 25, aged 70, of coronary thrombosis.

Hemmings, Lincoln Smith, Bernalillo, N. Mex.; University of Wooster Medical Department, Cleveland, 1914; member of the American Medical Association; died in Albuquerque, N. Mex., September 30, aged 60, of coronary thrombosis.

Hershner, Newton W., Mechanicsburg, Pa.; University of Maryland School of Medicine, Baltimore, 1906; member of the American Medical Association; past president of the Cumberland County Medical Society; for many years medical director of Cumberland County; served on the staffs of the Harrisburg (Pa.) Hospital and the Carlisle (Pa.) Hospital; vice president of the First Bank and Trust Company, where he was a member of the board of directors for many years; died October 8, aged 72, of coronary occlusion.

Hirsch, Jerome Byron ⊕ Greenville, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1907; served overseas during World War I; affiliated with King's Daughters Hospital, where he died October 5, aged 65, of cerebral hemorrhage.

Horn, John Wesley Jr., ⊕ Hummelstown, Pa.; Temple University School of Medicine, Philadelphia, 1917; served as deputy coroner and member of the school board; director of the Farmers' Bank of Hummelstown; died September 29, aged 63, of coronary occlusion.

Hull, Chester E., Fort Wayne, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; died October 2, aged 67, of intestinal obstruction and cancer.

Hunt, Harry Elwyn, State Soldiers Home, Ohio; Cleveland Homeopathic Medical College, 1899; veteran of the Spanish-American War; died in Ohio Soldiers and Sailors Home Hospital October 1, aged 78, of cerebral hemorrhage.

Ives, Nathaniel Holmes ⊕ Mount Vernon, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1895; in 1945 was made an honorary life member of the board of managers of Mount Vernon Hospital in recognition of fifty years' service to the hospital; a trustee of his alma mater; for many years director of the Mount Vernon Trust Company; died in the Lawrence Hospital, Bronxville, October 8, aged 77.

Jacobius, Lawrence, New York; Albany Medical College, 1914; member of the American Medical Association; specialist certified by the American Board of Otolaryngology; affiliated with the Hospital for Joint Diseases, Harlem Hospital and Jewish Memorial Hospital; died September 26, aged 59, of rupture of the abdominal aorta.

Jones, Richard Wayland, Yreka, Calif.; Jefferson Medical College of Philadelphia, 1935; member of the American Medical Association; on the staff of the Siskiyou County General Hospital; died September 24, aged 41, of coronary occlusion.

Karr, Maskell Curwen, Akron, Ohio; Eclectic Medical Institute, Cincinnati, 1909; died September 16, aged 67, of coronary occlusion.

Kimbrough, William Edward, Chatom, Ala.; University of Alabama School of Medicine, University, 1915; member of the American Medical Association; served during World War I; died October 8, aged 60, of coronary occlusion.

King, David Francis ⊕ Laurelton, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1874; an Associate Fellow of the American Medical Association; died September 22, aged 97, of pneumonia.

Kingston, Thomas Smith, Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1886; formerly practiced in Croswell, where he served as county health officer and member of the local board of education; died in East Grand Rapids September 29, aged 89, of diverticulitis.

Kinney, Richard Anthony ⊕ Jamestown, N. Y.; Georgetown University School of Medicine, Washington, D. C., 1930; served during World War II; died in St. Francis Hospital, Pittsburgh, September 21, aged 44.

Land, Joel Cameron ⊕ Walnut Ridge, Ark.; Memphis (Tenn.) Hospital Medical College, 1900; also a pharmacist; past president of the Lawrence County Medical Society; formerly vice president of the Arkansas Medical Society; served during World War I; health officer; physician and surgeon for the Missouri Pacific and Frisco railroads; died in Baptist Memorial Hospital, Memphis, Tenn., October 3, aged 76, of cerebral embolus.

Latham, Edgar M., Toledo, Ohio; Toledo Medical College, 1900; died September 28, aged 82, of cerebral thrombosis.

Leathers, Douglas Arnold, Indianapolis; Jefferson Medical College of Philadelphia, 1886; died October 1, aged 91, of arteriosclerotic heart disease.

Linn, Robert Fred, Lakewood, Ohio; Loyola University School of Medicine, Chicago, 1938; member of the American Medical Association; fellow of the American College of Surgeons; clinical instructor in obstetrics and gynecology at Western Reserve University School of Medicine in Cleveland, where he was on the staff of Lutheran Hospital and on the consulting staff of City Hospital; served during World War II; died September 26, aged 40, of coronary disease.

McGarry, John Louis, Coeur d'Alene, Idaho; Northwestern University Medical School, Chicago, 1937; member of the American Medical Association; formerly on the staff of St. Francis Hospital, Evanston, Ill.; died September 23, aged 40, of coronary occlusion.

Mercer, Herman A., ⊕ Jeffersonville, Ind.; born in Pretty Prairie, Kan., May 22, 1896; University of Oklahoma School of Medicine, Oklahoma City, 1922; formerly assistant in ophthalmology at the University of Illinois College of Medicine in Chicago, where he was a resident in ophthalmology at Research and Educational Hospitals; on the staff of SS Mary and Elizabeth Hospital, Louisville, Ky., and Clark County Memorial Hospital, Jeffersonville; died in Hanover, Ind., October 3, aged 54, of heart disease.

Messner, Paul Oram, Miami Springs, Fla.; College of Medical Evangelists, Loma Linda and Los Angeles, 1934; certified by the National Board of Medical Examiners; served during World War II; died in Jackson Memorial Hospital, Miami, October 2, aged 48, of cerebrovascular hemorrhage and hypertensive vascular disease.

Morse, John Hinckley, Augusta, Maine; Harvard Medical School, Boston, 1901; on the staff of Augusta General Hospital; died September 30, aged 75, of coronary occlusion.

Mosler, Ernst, New York; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1906; member of the American Medical Association; associated with Flower and Fifth Avenue Hospitals and Beth Abraham Home for Incurables; died September 21, aged 68, of carcinoma of the stomach.

Mott, Edwin Leland, Fresno, Calif.; Jefferson Medical College of Philadelphia, 1918; served during World War I; affiliated with St. Agnes and Fresno Community hospitals; burned to death in a mountain cabin fire near Fresno September 24, aged 57.

Mullikin, Hugh Mathes, Terre Haute, Ind.; Miami Medical College, Cincinnati, 1903; died October 2, aged 73, of coronary disease.

Nihizer, Adonis Hugh ⊕ Vaughnsville, Ohio; Ohio State University College of Medicine, Columbus, 1929; affiliated with Lima Memorial and St. Rita's hospitals; died September 20, aged 52, of coronary thrombosis.

O'Hara, Fred Summa, Springfield, Ill.; Marion-Sims College of Medicine, St. Louis, 1899; specialist certified by the American Board of Radiology; member of the Radiological Society of North America, of which he had been first president, the American Medical Association and the American College of Radiologists; served during World War I; affiliated with Memorial and St. John's hospitals; died October 1, aged 74, of cerebral hemorrhage.

Parmeter, Rolland Louis, Albion, Mich.; Rush Medical College, Chicago, 1895; fellow of the American College of Surgeons; formerly practiced in Detroit, where he was affiliated with Wayne University College of Medicine and was for many years on the staffs of Receiving and Harper hospitals; served during World War I; formerly editor of the *Bulletin of the Wayne County Medical Society,* now known as the *Detroit Medical News;* died in the Sheldon Memorial Hospital October 4, aged 78, of heart disease.

Peters, David Boteler ⊕ Surgeon, Lieutenant Commander, U. S. Navy, retired, Asheville, N. C.; George Washington University School of Medicine, Washington, D. C., 1917; veteran of World War I; entered the U. S. Navy in December 1930; retired June 1, 1943; died in the Veterans Administration Hospital in Oteen September 26, aged 69, of myocardial infarction and arteriosclerotic heart disease.

Poling, Owen, Mason, W. Va.; Loyola University School of Medicine, Chicago, 1916; member of the American Medical Association; died in Charleston September 27, aged 66, of carcinoma of the lung and liver.

Raiter, Roy Ferdinand, Cloquet, Minn.; born in Stillwater, Minn., Nov. 26, 1897; Northwestern University Medical School, Chicago, 1923; member of the American Medical Association; fellow of the American College of Surgeons and the International College of Surgeons; formerly associated with the Indian Service; medical superintendent of the hospital bearing his name; served on the staffs of St. Luke's and St. Mary's hospitals in Duluth and Fond du Lac Hospital; died in University Hospital, Minneapolis September 23, aged 52, of tuberculous peritonitis.

Rether, Charles Hoffman, Columbus, Ohio; Hahnemann Medical College and Hospital of Philadelphia, 1899; died in Mount Carmel Hospital September 29, aged 84, of arteriosclerotic gangrene of the left leg.

Rossell, Edward Wood, Camden, N. J.; Medico-Chirurgical College of Philadelphia, 1905; member of the American Medical Association; died September 29, aged 73, of cerebral thrombosis.

Smith, Edward Kearney, Lancaster, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1918; member of the American Medical Association and the American Academy of Pediatrics; for many years school physician; affiliated with Rossmere Sanatorium, Lancaster General and St. Joseph's hospitals; died September 12, aged 55, of cerebral thrombosis.

Stutzman, Raymond Howard, Tower City, Pa.; Maryland Medical College, Baltimore, 1912; member of the American Medical Association; affiliated with Lemos B. Warne Hospital in Pottsville, where he died September 23, aged 65, of coronary thrombosis.

Sullivan, Charles Peter ⊕ Dayton, Ohio; Northwestern University Medical School, Chicago, 1912; served during World War I; died in Woodlawn Hospital, Chicago, September 24, aged 63, of cardiac tamponade.

Terry, Wallace Irving, San Francisco; Medical Department of the University of California, San Francisco, 1892; clinical professor of surgery emeritus at his alma mater; member of the House of Delegates of the American Medical Association in 1905; member of the American Surgical Association and Pacific Coast Surgical Association, of which he had been past president; fellow of the American College of Surgeons; died September 22, aged 81, of carcinoma of the sigmoid.

Uhlmann, Robert, Kansas City, Mo.; Ludwig-Maximilians-Universität Medizinische Fakultät, Munchen, Bavaria, Germany, 1910; member of the American Medical Association; affiliated with Menorah Hospital; died September 13, aged 63, of cancer.

Voigt, Arno Constantine ⊕ Hawley, Pa.; Jefferson Medical College of Philadelphia, 1901; served as county coroner and county medical director; president of the First National Bank; affiliated with Wayne County Memorial Hospital, Honesdale, where he died September 20, aged 72, of arteriosclerosis and myocarditis.

Von Roeder, Ludwig Robert, New York; Cornell University Medical College, New York, 1900; formerly adjunct professor of pediatrics at the New York Polyclinic Medical School and Hospital; affiliated with New York Polyclinic, St. Francis and Park East hospitals; died in Lenox Hill Hospital, September 22, aged 74, of coronary thrombosis with myocardial infarction.

Walker, Wallis Dunlap ⊕ Rye Beach, N. H.; Harvard Medical School, Boston, 1901; served during World War I; died in the Exeter (N. H.) Hospital September 24, aged 74, of leukemia.

Wallace, William Smiley ⊕ Orange, Calif.; Jefferson Medical College of Philadelphia, 1893; an Associate Fellow of the American Medical Association; past president of the Orange County Medical Society; on the staff of the Orange County General Hospital; died in Las Vegas, Nev., September 14, aged 81, of coronary thrombosis.

Werner, Charles Henry ⊕ St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1906; an Associate Fellow of the American Medical Association; served during World War I; affiliated with Missouri Methodist Hospital and St. Joseph Hospital; for many years physician for the Welfare Board; died in the Veterans Administration Center, Wadsworth, September 17, aged 71, of thrombotic infarction with gangrene of the left leg.

Wolfort, Benjamin Edgar, Brooklyn; Johns Hopkins University School of Medicine, Baltimore, 1906; member of the American Academy of Orthopaedic Surgeons and the American Medical Association; affiliated with Jewish Hospital; died in September, aged 70, of coronary occlusion.

Woodbury, Frank Taylor ⊕ Wakefield, Mass.; Harvard Medical School, Boston, 1896; past president of the Middlesex East District Medical Society; on the honorary staff of Melrose Hospital; for many years trustee of the public library; died September 16, aged 78, of coronary thrombosis.

Young, Robert, Hoopeston, Ill.; Columbia University College of Physicians and Surgeons, New York, 1949; certified by the National Board of Medical Examiners; interned at Indiana University Medical Center in Indianapolis; intern in pediatrics at the University of Chicago Clinics in Chicago; served during World War II; died in Bob Roberts Hospital in Chicago, September 25, aged 25, of coronary occlusion.

FOREIGN LETTERS

LONDON

(From a Regular Correspondent)

Oct. 10, 1950.

Annual Representative Meeting, 1950

The meeting was held in the Great Hall of British Medical Association House, London, on Thursday, Sept. 28. The chair was taken by Dr. J. A. Brown (Birmingham), chairman of the representative body, who was supported by the president of the association (Sir Henry Cohen), the chairman of the Council (Dr. E. A. Gregg) and the treasurer (Mr. A. M. A. Moore). The meeting began at 9:30 a. m. and completed its work at 6.15 p. m.

The General Practitioner-Specialist.—Dr. Leak, on behalf of Mid-Cheshire, further moved: "That this meeting considers that greater recognition should be given to the established practitioner with specialist experience, who seems strangely neglected in the Council's recommendations on general practitioners and hospital work." He said that those concerned felt very keenly having to give up their specialist jobs after many years. They might not have the F.R.C.S. but they were persons with excellent records and experience and trusted by their patients, having lived for a long period with their successes and their failures. Mr. Staveley Gough said that he felt again that the wording of this motion showed lack of understanding of the report. At least three sections of the report were concerned with the introduction of the general practitioner in a specialist capacity into the hospital system. The boards of the hospitals had a public duty to see that the members of the staffs held certain qualifications or had had certain experience as assessed by committees of their brethren or by tests in open competition following public advertisement. Thus any general practitioner having the necessary experience and qualifications could answer a public advertisement for a post, and if he were a good man he would get the job. It had been realized that in the past there was an implication that he might not get the job because he was a general practitioner, but the report specifically stated that the fact of being a general practitioner would not bar him. Mr. Lawrence Abel (Marylebone) moved an amendment to end the motion at the words "specialist experience," omitting the denigratory reference to the Council's recommendations. The report covered these established practitioners and declared that the appointment of the general practitioner specialist should be retained and encouraged. This was bound up with the grading question. He said the grading would be examined in 1951. Many men had suffered three years' diminution of income because they had been incorrectly graded. The motion was amended and carried.

Designations of General Practitioners in Hospitals.—Dr. A. G. Heron (Bristol) moved: "That the Council be requested to provide a clear designation for general practitioners engaged (*a*) in paid sessional work in hospitals and (*b*) in honorary appointments for educational purposes, and shall endeavour to procure the acceptance of these designations by the regions, and that safeguards be set up so that a general practitioner attending a hospital as a clinical assistant for educational purposes shall not be used to fill an otherwise remunerable employment." He said that the Council had laid down as a principle that the term "clinical assistant" should be used only in its strictest sense. In the planning of action later in the report a dangerous ambiguity appeared to creep in. If these appointments involved useful work in hospital, such work should be paid for, even though it had educational value. Why should the underpaid general practitioner be the only member of the profession still required to work on an honorary basis? What hope had the general practitioner anesthetist, for instance, of achieving consultant status, with the queue of senior registrars and registrars awaiting appointments?

Mr. Staveley Gough said that the committee had approached this matter with some care. The term "clinical assistant" had in the past generally been associated with an honorary job. The first part of the committee's work was concerned with the endeavour to get hospital accommodation for the general practitioner. It was stated most specifically that a post created for educational purposes must be purely educational and carry no degree of clinical responsibility toward the patient. If the clinical assistantship carried with it clinical responsibility, this must be paid for. With regard to part time appointments, the committee was satisfied that such appointments should be paid ones. Dr. Watney Roe supported the motion. The solution was the early institution in hospitals and clinics of paid posts open to general practitioners. Dr. Heron said that Mr. Staveley Gough seemed to come dangerously near accepting the principle of sweated labor in order to get general practitioners into hospitals. The committee, he said, had not faced the question: When is a clinical assistant not a clinical assistant, and when he is not, what is he? The Bristol motion was carried.

The General Practitioner and Major Surgery.—Dr. A. C. E. Breach (Bromley) moved that there should be omitted from the council's interim report the statement ". . . it is stressed that major surgery should not be included in it," that is, the scope of general practice, and the further statement under the heading "Way in Which Integration May Be Achieved."

The motion read that he (the general practitioner) should, of course, not undertake major surgery. He must restrict himself to such work as is within his sphere. Major surgery should not be performed in general practice hospitals, although, of course, even in the smallest hospital this may be necessary in an emergency. He said that they were impressed by the over-all excellence of this report. Bromley was requesting not a positive assertion of the right of the general practitioner to practice major surgery but the deletion of a prohibition. They felt that, if that prohibition were allowed to go through unchallenged, it would come to be regarded as part of the policy of the association, that is, that a general practitioner, unless recognized by some other standards, such as assessment by selection boards, was not *ipso facto* entitled to practice the art in which he had qualified. If they once accepted the idea, there was no limit to the number of restrictions that could be imposed under the Medical Acts. It was intolerable that any committee, whether governmental or of their own profession, should say that a man who had achieved qualification as a surgeon must not practice surgery unless he had satisfied some extraneous board.

Mr. Staveley Gough begged the meeting not to be persuaded by an emotional approach to their rights as members of the profession. They were public servants. They had a responsibility to their patients and to their profession. The purpose of this report was to get general practice beds back and new wards open to the general practitioner. He went on to say that there were two sections of general practitioners: those who did general practice only, and those who also did, and had a right to do, specialty work outside general practice. The bodies responsible for hospitals had a right, if asked for general practice beds, to insure their being used for general practitioner purposes. The general practitioner-specialists had other possibilities of entering a hospital, but he must be prepared to show that he had the necessary special experience.

Dr. C. F. Mayne (Plymouth) supported all that Mr. Gough had said. He had spent 10 years in general practice before becoming a specialist, during which time he was on the staff of a hospital as a general practitioner. There must be safeguards for the patient, and he thought those safeguards were provided by the present report. It was wrong for general practitioner-surgeons to attack malignant disease in a small rural hospital when they were not in full collaboration with the radiotherapist of the area. The amendment in his view would have the effect of deleting certain safeguards that were in the patient's interests.

Lord Horder (Marylebone) thought that the words which Bromley wanted deleted were unfortunate. Care, he said, must be taken not to lay down limits, whether it be to the practice of medicine, surgery or midwifery. He did not mean by this that any general practitioner, however good he might be, should deal with a difficult and complicated surgical procedure for advanced cancer. That would be a travesty of common sense. But he thought it unfortunate that the word "must" came in ("He must keep to such work as is within his sphere"). A short time ago they were threatened with a veto on attending a woman for the delivery of her baby unless they had some special qualification or sanction to do so. They must notice how near they were standing to the sabotage of their own privileges. The Bromley amendment after some further discussion by several other speakers was carried by a large majority, and the interim report as amended was approved.

Women in Medicine

In a recent article in the *British Medical Journal,* there appeared a review of the proportionate numbers of women in London medical schools. The article points out that, whether or not one agrees with Sir Robert Hutchison's views that women in men's medical schools are a disturbing element, it is a fact that all the London medical schools are now coeducational. In 1944 the Goodenough Committee drew attention to the difficulties besetting women undergraduates who desired to study medicine in London. Coeducation was a familiar feature in medical schools in the rest of Britain. In London at the time of the report nine out of 15 medical schools of London University admitted men students only. There was one, the Royal Free Hospital Medical School, limited to women only. The committee considered that, in the interests of the public and of the medical profession, coeducation should become the practice in every medical school. They recommended a reasonable proportion of women students to men students in every school. The London University about that time said that its policy was to open all medical schools to men and women on terms of equal opportunity. The University Grants Committee bluntly said, "No coeducation, no grant." By 1947, all medical schools of London University were coeducational.

The proportion of women to men in Britain in 1938-1939 was 1 to 5.7. The provincial, Scottish and Welsh universities account for 1,275 out of 1,930 women medical students. This showed a "reasonable" proportion to be one woman to four men. But in the London University no fewer than 357 of the 551 women medical students were at the London School of Medicine for Women, that is, the Royal Free Hospital Medical School. The remaining 194 were in King's College, King's College Hospital, Queen Mary College, University College and University College Hospital. Figures for London as a whole showed that there was one female to every eight male medical students. In the Scottish extramural schools there was one woman to every 19 men, but these schools are exceptional—in 1938-1939, 40 per cent of the Scottish extramural students were from foreign countries.

By 1948-1949 the total number of women medical students had risen to 2,931. There was a fall in the men students to 10,281 (from 11,037). By that year the proportion of women students to men had risen to 1 : 3.5, representing an increase of 50 per cent over the figure for 1938-1939 (1 : 5.7). In Scotland and Wales and the provinces there was nearly one woman student to every three men, while in London the proportion of women (18.9 per cent) was close to the 1 : 4 proposed by the Goodenough Committee. Against this it must be recorded that the West London Hospital for Women in 1948-1949 had 68 women, but it has now ceased to recruit undergraduate students since it is to be converted to a school for postgraduate training.

Schools that were coeducational before the war continued to train about the same number of women students. King's College and King's College Hospital averaged 1 : 5.7 in 1948-1949; University College and University College Hospital show a slightly higher proportion of women (1 : 4.7); at Queen Mary College the figure is a little less (1 : 9). Of the nine schools that refused to take women before the war, none have as yet reached the Goodenough "reasonable" proportion of women to men. St. Bartholomew's, Charing Cross and St. George's hospitals come nearest, with one woman to every seven men. Guy's, London and Westminster have a proportion of less than 1 : 19. Intermediate between these come the Middlesex, St Mary's and St. Thomas's hospitals. When the Royal Free Hospital is included, the total proportion of female to male medical students at London University in 1948-1949 falls just short of the 1 : 4 recommended in the Goodenough report. If every school had its recommended reasonable proportion of women there would be 479 more women medical students in London than there are at present. However, extra facilities would have to be provided, and there would be fewer places for men, the article states, and this might lead to the reflection on the doubtful wisdom of trying to spread the load too widely. Feminists, they point out, should take note of the fact that the Royal Free Hospital, also coeducational, last year had the very unreasonable proportion of only one man to every 93 women medical students.

Victory Medal for Diabetes

Dr. Elliott P. Joslin, who celebrated his eighty-first birthday last June, is known throughout the world as a distinguished veteran in the fight against diabetes. About two years ago, as part of his effort to educate diabetic patients in healthy living and show them what proper care can do, he originated the Victory Medal, to be presented to every person who is still free of all vascular disease after a quarter-century or more with proved diabetes. In the 24 months up to June 1, 1950, 20 patients had passed this test. Last year Dr. Joslin gave a medal to Dr. R. D. Lawrence, who for 20 years had led an active professional life as a consultant in diabetes and is said to have been one of the first persons in Britain to receive insulin.

The above report appeared in a recent edition of the *British Medical Journal.* Dr. Howard F. Root has now invited its editor to award a bronze Victory Medal in Britain. The journal records its warm appreciation of the generous gesture of goodwill from our American colleagues. The medal is now in the office of the journal. A committee is to be formed to decide how best to award it. The medal, illustrated in Dr. Root's letter, was designed by Amelia Peabody. It is 2 inches in width, and on the reverse side appear the words "For life and health through perseverance and scientific medicine."

ISRAEL

(From a Regular Correspondent)

JERUSALEM, Nov. 9, 1950.

Dracunculosis Among Immigrants from Yemen

During the past year there has been an incidence of tropical diseases which had not been previously observed in Israel. I. Katzenellenbogen has published his first observation of cases of dracunculosis in *Harefuah* (Oct. 15, 1950). The patients were between 3 and 67 years of age. Of the 49 patients, who had arrived in Israel eight months previously, four came from Sharab and 45 from Suda, a large village in the marshes of Yemen. All the patients except those from Sharab had had numerous filariae in the past as well as during the observation period in Israel, which occurred in the summer months. Filariae were not seen during the past winter.

Swelling, inflammation of the limbs, boils and blisters of the skin, rise of temperature and general malaise preceded the appearance of the worms. While the feet and legs were predominantly affected, filariae were also seen extruding from the buttocks, mammae, palms and even the penis. Seventeen worms were observed in a 5 year old boy during his seven week stay in the hospital. Cellulitis-like swellings and blisters with rise of temperature up to 40 C. (104 F.) would occasionally announce the arrival of a new Dracunculus. Occasionally filariae protruded from under tiny scabs with practically no inflammation and no rise of temperature. The period of time from the perforation of the skin and the appearance of the embryos containing pus to the emergence of the worms varied, even in the same patient, from a few days to two or three weeks.

In three patients calcification of dead filariae from previous attacks was noted. Large pigmented scars on the legs and buttocks were found in patients with earlier attacks of dracunculosis. In practically all adult patients the worms recurred regularly every year. One patient was reported to have had more than 300 filariae in the past. The results of blood cell counts were not uniform. Leukocytosis and eosinophilia were noted in some patients. A child with numerous filariae had a normal eosinophil count but a leukocyte count of 19,000 and hemoglobin of 68 per cent. Treatment was completely symptomatic. Penicillin and sulfonamides were given in cases of cellulitis and similar septic inflammations.

First Research Council Bulletin

The Research Council of Israel, attached to the Prime Minister's Office, has issued its first bulletin. The Council's task, as defined by Mr. Ben Gurion at its first meeting, is threefold: (1) to foster pure and applied research and to coordinate scientific and higher educational activities in the interest of the development of the country and the absorption of immigrants, (2) to improve scientific equipment in general and to establish laboratories for physics and biology and (3) to assist young research workers and to invite experts from abroad. The bulletin surveys the tasks and present activities of the five principal committees and their subcommittees, dealing with fundamental research questions, industrial research, building problems, food and agriculture. The practical importance of this kind of research is illustrated, for instance, by the fact that the damage caused by corrosion of irrigation pipes amounts to at least one million pounds yearly.

Donation to Medical School

Through the efforts of Prof. J. M. Rogoff, of the University of Pittsburgh, United States, $25,000 has been donated for the equipment of a physiology laboratory for the University-Hadassah Hospital Medical School. Professor Rogoff was also instrumental in obtaining through the Phi Lambda Kappa Fraternity of Jewish physicians in the United States four annual scholarships, each valued at $1,500, for students of the medical school. Professor Rogoff gave the first series of lectures to the first class of medical students after the formal opening of the medical school in May last year.

BRAZIL

(From a Regular Correspondent)

RIO DE JANEIRO, Sept. 28, 1950.

Identification of Leptospirae in Rats

Dr. V. O. Guida, of the São Paulo Biological Institute, studied serologically 29 strains of leptospirae isolated from Rattus norvegicus captured in the city of São Paulo and ascertained, through agglutination and lysis, the titers of the serums from infected and noninfected rats and their relation to infection in those rodents. The 29 strains of leptospirae could all be identified as Leptospira icterohemorrhagiae, as they reacted positively with anti-icterohemorrhagiae serum and negatively with anticanicola serum. In 16 strains the levels of antibodies were as high as 1:15,000. The search for antibodies against L. icterohemorrhagiae in 24 rats from the same city was positive (1:50) in 11 out of 17 adult animals and negative in seven young ones. The search for Leptospira in the kidneys of 11 positive animals by the combined methods of dark field, culture and Guinea pig inoculation was successful in 9 cases. The other two rats, despite a high serologic titer (1:300 and 1:15,000) were not Leptospira carriers and were probably in a recent self-sterilizing stage.

Intrauterine Transmission of Schizotrypanum Cruzi Disproved

The common mechanism of transmission of the causative agent of American trypanosomiasis (Chagas' disease) from vertebrate to vertebrate is by means of intermediate hosts, i. e., the cone-nosed bugs of the family Triatomidae. Direct passage from a female animal to her young has also been observed. The congenital transmission in man, although considered by Chagas to be the principal cause of the chronic nervous form of trypanosomiasis, has not yet been proved. Dr. J. Pedreira de Freitas and Dr. Francisco Pinto Lima, of the Department of Parasitology, University of São Paulo, have recently reported a case of a woman, ill with Chagas' disease, who died at the end of pregnancy and whose child, also dead, was not infected. The clinical and pathological pictures of the mother revealed an intense chronic myocarditis, the etiology of which was made clear by positive complement fixation reaction and xenodiagnosis. Pathological examination of the fetus did not reveal any change that could prove the presence of the infection, nor did the placenta show any nest of the Leishmania stage of the trypanosoma, as is so frequently observed in animals infected with the parasite.

Concurrent BCG Vaccination and Familial Tuberculosis

Dr. Arlindo de Assis published a paper adding factual evidence that concurrent BCG vaccination is, as he says, strikingly more efficient than the common immunization of newborn infants. Both procedures are used as a means of fighting child tuberculosis in Rio de Janeiro. Dr. Assis reported the instance of a poor couple who had had 12 children. The first seven had not been immunized with BCG, while the last five received the protection of the vaccination immediately after birth. Of the seven nonvaccinated children, four died in early infancy, of diseases described by the parents as meningitis and capillary bronchitis. The three living nonvaccinated children are healthy and react to tuberculin. In the last few years, the father began to present symptoms of a disease described as chronic bronchitis but which was later found to be pulmonary tuberculosis. From then on the couple agreed to have their newborn children vaccinated with BCG, four of them having been immunized immediately after birth by the Calmette method, the last one by the concurrent method (six BCG doses during the first semester of life). Of the four immunized by the Calmette method, two died of capillary bronchitis and acute bronchopneumonia. The other two children presented radiological and allergic pictures of primary active tuberculosis, in one of them confirmed by guinea pig inoculation of gastric material. Both children continue to react to tuberculin. The last child, born during the undisputably bacilliferous stage of the father's illness, in direct contact with the father to the age of 4½ months, when the father died. This last child, a boy, vaccinated by the concurrent method, was entirely free from the effects of the contagion and is now 54 months old. Since the age of 16 months he has not reacted to tuberculin (anallergy up to 10 mg. of unpurified tuberculin).

Chronaxia, Curare and Neostigmine in Man

Drs. J. Souza Campos and Elvio Fuser, of the N. S. Aparecida Hospital of Rio de Janeiro, reported their study on chronaxia with frogs and human patients under the effect of curare and neostigmine. Patients who received therapeutic doses of curare never presented changes of the normal values of chronaxia. Some showed advanced symptoms of curarization (paralysis of the abdominal limbs, difficulty in swallowing, slight cyanosis), which led to the use of the antagonistic drug (neostigmine). Even then the values of chronaxia were normal. Under experimental conditions with toxic doses, after the appearance of neuromuscular dysfunction, an increase of 10 and 12 times the normal value was always observed, but the chronaxia of the nerves was normal. Human patients treated with neostigmine did not show any chronaximetric changes in muscles and nerves, and in frogs paralyzed by neostigmine the chronaxia of muscles and nerves was also normal. In these animals, neostigmine did not reduce the high values characteristic of curare poisoning. In conclusion, the systematic increase of the chronaxia value in frogs under curare intoxication is observed only after the appearance of neuromuscular dysfunction (Claude Bernard's phenomenon).

COLOMBIA

(From a Regular Correspondent)

Bogotá, Oct. 4, 1950.

Early History of Cinchona

Prof. Jaime Jaramillo Arango, former rector of the National Faculty of Medicine and former Colombian ambassador to England, recently published an article in *Revista de la Facultad de Ciencias Médicas of Quito* (April 1950) entitled "Critical Study of the Basic Facts of the History of Cinchona." This study has also appeared in the *Review of the Linnean Society of London; Revista de la Academia de Ciencias Exactas, Fisicas y Naturales* (Madrid) and *Anales de la Sociedad Peruaña de la Historia de la Medicina.* Professor Arango's work has been commented on in the *Review of the New York Botanical Gardens* by F. R. Fosberg, who considers the study to be the "last word on the early history of cinchona." Dr. Jaramillo Arango believes that the American Indians knew about and used the bark of the cinchona tree. There is no definite evidence concerning the first use of cinchona bark by the Europeans. The legend of the cure, whether of the Countess or of the Count of Chinchon, is almost completely refuted. The theory that the Jesuits first introduced quinine to Europe and were responsible for its extensive use there is the most plausible one. They apparently brought the drug to Rome during an epidemic of malaria, which they controlled with quinine. Possibly before this, others may have brought it to Spain. The oldest work on quinine seems to be the "Schedula Romana" of 1649, attributed to Puccerini. Professor Arango discusses the classification of the cinchona by Linnaeus, the discovery of quinine by Mutis in Nueva Granada and the basic change in the genus of cinchona, from the original C. officinalis to C. cardifolia (C. pubescens), in the twelfth edition of the "Systema Naturae" (1767).

Therapeutic Tests with Antireticular Cytotoxic Serum in Schizophrenia and Arteriosclerotic Dementia

Dr. Carlos Artega Camero published in the *Revista de la Facultad de Medicina* of Bogotá (June 1, 1950) the results obtained with antireticular cytotoxic serum in 30 patients in the Women's Mental Hospital of Bogotá. Twenty-four had schizophrenia of long duration and had been previously subjected to various shock treatments without improvement: five had senile dementia with cerebral arteriosclerosis, and one had an exogenic puerperal psychopathy. A permanent remission of mental illness was obtained in only the last-mentioned patient. There was no improvement in 12 schizophrenic patients, while improvement was transient in six and permanent in six. None improved to a degree that would have allowed her to return home and become reintegrated again in normal family life. Of the five patients with senile dementia and cerebral arteriosclerosis, two showed no improvement, two permanent improvement and one died on the fifth day after the termination of the treatment owing to an intercurrent disease. The author concludes that Bogomolest's serum is of some value in schizophrenia. It is of promissory value in senile dementia, cerebral arteriosclerosis and exogenic infectious psychosis, but the limited number of cases observed does not permit definite conclusions. The author's results do not agree with those reported by others.

New Faculty of Medicine

The new Faculty of Medicine of the University of Cauca in Popayan City began functioning on October 2. Under the jurisdiction of the National University it will have the same programs and standards of the university. The school opened with 70 students and the following staff: Dr. Nestor Santacoloma, dean and professor of anatomy; Dr. Alvaro Angulo, assistant professor of anatomy; Dr. Leonardo Santamaria, professor of medical chemistry; Dr. Julio Cesar Perafan Fajardo, professor of medical physics, and Dr. Reinaldo Coronel, professor of medical drawings. Only first year medicine is to be presented this year. The curriculum will be expanded so that the students will be able to complete their studies. The present school is a reestablishment of the old school that was in operation in Popayan City during the nineteenth century. The Faculty of Medicine of the University of Cauca was established on Aug. 5, 1835 and was in existence until 1890.

Lectures

Dr. Eduardo Coke, former minister of public health and professor at the University of Santiago, Chile, visited Bogotá in August. He spoke at the National Academy of Medicine and at the Colombian Medical Federation on the pathogenesis of cancer and on the establishment of social security in Chile.

Dr. Vicente Senti Montagut of the Faculty of Medicine and of the Provincial Hospital of Madrid, Spain, lectured at the Facultad de Medicina of the National University, Sept. 11, on the pathogenesis and treatment of scoliosis.

Drs. Herald R. Cox and Sydney H. Babcock Jr., of the United States, were invited to lecture at the National University and the Javeriana University. They remained in Bogotá from September 19 to 25. Dr. Cox, winner of the Theobald Smith Award of 1941, spoke on experiments on neurotropic virus as oncolytics and on aureomycin therapy in rickettsial diseases. Dr. Babcock spoke on antibiotics in general.

CORRESPONDENCE

TREATMENT OF POSTANESTHESIA NAUSEA AND VOMITING

To the Editor:—Since the introduction of dimenhydrinate (dramamine®) in 1947 by G. D. Searle & Co. many uses have been found for this drug. The most phenomenal results were those in motion sickness published by Gay and Carliner. Nevertheless, its major usefulness will be evaluated differently, depending on the phase of medicine in which one is interested. This is well illustrated by the following reports: (*a*) E. F. Kerman successfully treated 15 patients for nausea following electric shock and also eight patients with migraine, (*b*) E. Brentan employed it in migraine, (*c*) Beeler and co-workers in radiation sickness, (*d*) Campbell after fenestration operations and (*e*) Stoecker after local anesthesia in ophthalmology. All reports show good results. However, one of the most important uses of dimenhydrinate has not been reported as yet: that is, its use for nausea and vomiting following general anesthesia.

In ophthalmology it is imperative that the patient should not vomit after intraocular surgery or diathermy for detachment of the retina. While the need for maintaining the patient in a quiescent state after surgery may not be so acute in other specialties, the well-being of any surgeon's patient is always a prime requisite.

The possibilities of dimenhydrinate in postanesthesia vomiting first occurred to me in December 1949, while interrogating a patient who had recently lost an eye because of vomiting following a cataract extraction. The patient had previously had two operations with intravenously administered thiopental sodium as an anesthetic. He had been so delighted with this form of anesthesia that, when he was ready for the cataract operation, he requested its use for this operation. After its use, he vomited severely for eight consecutive days. No remedies were of appreciable benefit. As morphine had been given for this third operation, in spite of orders to the contrary, it was thought that this may have been the offending agent. Consequently, when a fourth operation was under consideration, the patient, the anesthetist and the surgeon discussed the type of anesthesia to be employed. As the patient was apprehensive, he again decided on thiopental sodium without morphine.

After the fourth operation he was very sick—he was nauseous and vomited. The night of the operation the patient was found lying on his abdomen holding onto the bed. When he said his head was going around so that he felt he must "hold on for dear life," the use of dimenhydrinate was immediately thought of. The anesthetist had not previously employed it for this purpose. However, he administered 100 mg. rectally. In approximately a half-hour the patient had entirely recovered. Since that time we have employed dimenhydrinate as a preoperative prophylactic measure, with considerable satisfaction.

The departments of anesthesiology of both local hospitals have availed themselves of this information. The staff of the St. Joseph Hospital has employed the drug in 16 cases for postanesthesia nausea and vomiting, from ether in three cases, thiopental sodium in 10 and cyclopropane in three. The results in all cases were excellent. The staff at Memorial Hospital has used it with good results in six cases in which cyclopropane anesthesia had been used.

The present lack of knowledge of the total pharmacologic action of dimenhydrinate precludes the possibility of analysis of its therapeutic effect. The cases in which we used it certainly suggests a quieting effect on the labyrinth. It is our impression that in these patients a toxic labyrinthitis develops from the high concentration of the anesthetic agent in the blood stream during anesthesia. The sedative action of dimenhydrinate in motion sickness also embraces this impression.

The dosage employed prophylactically was 100 mg. given orally a half-hour before operation. In cases in which nausea and vomiting followed surgery (no dimenhydrinate having been given before surgery) 100 mg. were suspended in 20 cc. of isotonic sodium chloride solution and given rectally.

Carl J. Rudolph, M.D.,
D. Davis Park, M.D.,
Charles Hamilton, M.D.,
South Bend, Ind.

ANTIDOTES FOR BROMATE NEUTRALIZERS

To the Editor:—In view of the recent editorial comment (Neutralizers in Home Permanent Waving Kits, *J. A. M. A.* 144:397 [Sept. 30] 1950) on neutralizers in home permanent waving kits, publication of a standard antidotal procedure for accidentally ingested bromate neutralizer may be of some value.

1. Administration of an emetic.
    - (*a*) Mustard powder, 1 teaspoonful, in 300 cc. of warm (not hot) water, or
    - (*b*) Zinc sulfate, 1 teaspoonful, in water, followed by copious ingestion of water, or
    - (*c*) Apomorphine, 5 mg., intramuscularly.
    - (*d*) Gastric lavage.
2. Sodium thiosulfate, 1 level teaspoonful in water. This may precede but should in addition always follow the emetic.
3. Demulcent drinks, such as milk, flour and water or cereal gruel.
4. Sodium thiosulfate solution, 1 per cent by intravenous drip, in quantities of 100 to 500 cc. If not feasible, 10 to 50 cc. of 10 per cent solution of sodium thiosulfate may be given intravenously.

Gastric washings and urine should be tested for the presence of bromide. Since a fatal outcome is apparently dependent on the nephrotoxic effect of bromate, speedy removal of the material from the stomach by mechanical or chemical means is of the utmost importance. When uremic symptoms develop, treatment is indicated as for mercury poisoning, since tubular degeneration similar to that produced by mercury has been noted in bromate studies on animals.

It should be noted that the antidotal procedure listed above is not applicable for all cold wave neutralizers. In the past year, one manufacturer (The Toni Company), cognizant of the toxic properties of bromate, has discontinued its use and has been supplying in its stead a neutralizer consisting of sodium perborate and sodium hexametaphosphate. Toxicological studies of this new formulation had shown it to be of considerably lower toxicity than bromate, since all experimental animals survived administration of relatively large quantities (exceeding, on the basis of body weight, the "human dose"). When antidotal procedures are required in a case of perborate ingestion, those listed under heading 1 may be used. In addition, the administration of magnesium sulfate by mouth is suggested.

Matthew J. Brunner, M.D.
1400 Otto Boulevard,
Chicago Heights, Ill.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Chiropractic Practice Acts: Revocation of License for Fraud and Deception.

The plaintiff, a chiropractor, filed an action to annul an order of the defendant, the State Board of Chiropractic Examiners, which revoked his license to practice chiropractic. From a decree sustaining the revocation order, the plaintiff appealed to the court of appeals of Tennessee.

The evidence showed that the plaintiff, who was licensed to practice chiropractic but possessed no license to practice medicine, had practiced medicine and surgery on two persons during 1947 and 1948 on specified occasions. The acts which were found to have constituted the practice of medicine were the use of hypodermic injections, the prescribing of medicines and the performance of an operation for the removal of a vaginal tumor. It is not claimed that his activities were authorized by his license as a chiropractor under the statutes defining the art as "the science of palpitating, analyzing and adjusting the articulations of the human spinal column by hand." It is insisted, however, that the chiropractic act is definitive and not prohibitive and that, since the act does not expressly prohibit any of the activities in which the plaintiff engaged, the defendant exceeded its authority and acted illegally in revoking the plaintiff's license. In brief, it is argued that the defendant assumed a legislative prerogative by creating on its own initiative and authority a ground for revocation and that its action in so doing destroyed a property right in violation of the constitutions of both the state of Tennessee and of the United States.

The right to practice a lawful profession, said the court of appeals, is a property right of which one cannot be illegally deprived. A license to practice a profession affecting the welfare of the public and, therefore, subject to the police power of the state, however, is not a contract entitling the holder to continue the practice of his profession unrestricted and unregulated. The state legislature unquestionably has the right, in the exercise of its police power, to set up boards to investigate the practice of the professions and to endow such boards with the right and duty to revoke, for good cause, a license previously granted. The power so delegated, however, can involve only a discretion as to when a proper occasion exists for executing the power. It cannot extend to the making of a new law. To avoid a violation of this principle, we think it must be said that the revocation of a license to practice a lawful profession cannot be predicated on acts or conduct not specified in the statute or embraced within its general terms.

Continuing, the court said that this does not mean, however, that in addition to providing specific grounds for revocation such boards may not validly be granted the power to revoke on general grounds which, by common understanding and universally accepted standards, are regarded as dishonorable, disreputable or incompatible with the honest practice of the licensed profession and the public welfare. For example, charges involving such general grounds as "unprofessional," "dishonorable" or "immoral" conduct and words of like general import in connection with the practice of the profession of medicine are frequently made the predicate for revocation of a license to practice that profession. We think the legislature, after laying down specific grounds for the guidance of the defendant, intended by the chiropractic act also to confer on it the power to revoke the license of a chiropractor whose activities were found to be unprofessional or subversive of the public interest and welfare. It did so, in our opinion, by authorizing the board to revoke the license of a practitioner who "in any way" has been "guilty of deception or fraud in the practice of chiropractic." This language, while confined to activities occurring in connection with the practice of the profession of chiropractic, is general in scope and meaning. Can it be supposed that one who, under his license as a practitioner of chiropractic, purports to engage in the practice of medicine and even of surgery, as shown in this case, and exacts a fee for such "services," has not been guilty of "deception and fraud in the practice of chiropractic?" The legislature with good reason has gone to great pains to define the standards for practitioners of medicine and has said that those who meet the standards of that profession can practice it. This clearly implies that others cannot. The plaintiff, by the undisputed evidence, has violated this policy.

When a licensed practitioner in one field uses his license in another field, and the title of "Doctor," to engage in an illegal practice, it is easy to see how the ignorant and credulous could be induced to part with their money on a false assumption. We think the conclusion that such conduct amounts to a fraud and a deception in the practice of the art for which a license has been issued is inescapable. In our view the language of the act under consideration is no more subject to attack as being too general than if it has used the language "unprofessional," "disreputable" or "immoral." Fraudulent or deceptive conduct in connection with the practice of a profession must be held to be unprofessional, disreputable and immoral. In practical effect, the terms are synonymous. Accordingly the order and decree revoking the plaintiff's license to practice chiropractic was affirmed.—*Janeway v. State Board of Chiropractic Examiners et al., 231 S.W. (2d) 584 (1950).*

Medical Motion Pictures

Behind the Menu. 16 mm., black and white, sound, showing time 10 minutes. Produced in 1950 by the National Film Board of Canada for the Department of Health and Welfare. Procurable on rental or purchase from National Film Board of Canada, 400 West Madison Street, Chicago 6, and 1270 Avenue of the Americas, New York 20.

This motion picture depicts a warning against unsanitary conditions in restaurants and demonstrates precautions that should be taken against dirt and harmful bacteria in the handling of food. Suggestions are made for increasing efficiency through better food storage, dishwashing methods and staff facilities. A few measures taken by public health authorities to maintain standards of restaurant sanitation are also portrayed.

The film points out some of the bad practices in the preparation and handling of food and the treatment of the refuse that spreads communicable diseases, emphasizing the proper as well as the improper methods of handling food, equipment and utensils. In a clearcut way, it points out most of the procedures that are essential in the control of spread of disease. A few of the protective measures taken by many restaurant owners which are illustrated are provision of easily cleaned equipment, arrangements for adequate staff washing facilities and spraying of kitchens with insecticides. Proper dishwashing methods are demonstrated, and a magnified picture of the bacteria lurking on poorly washed dishes proves the need for sterilization. Scenes in a dirty restaurant point up the danger signals by which customers can recognize poor places to eat: flies, chipped crockery and lipstick on the drinking glasses. Visits of inspection and routine tests by public health authorities are described. One sequence portrays a couple going into an unsanitary restaurant. The narrator suggests that the only effective means of raising health standards in restaurants is by the refusal of customers to patronize those where insufficient sanitary precautions are taken. However, this is ineffective from a production standpoint since the couple does not make any attempt to carry out the suggestions of the narrator.

The film is made in such a way that it would appeal to both professional and nonprofessional persons, and even those with no concept of food handling would benefit from seeing the picture. It is a good introductory film to the subject of food handling and should be shown to public health workers, service clubs, high school students, PTA groups and other organizations concerned with improving local restaurant conditions. The photography and narration are good.

POSTGRADUATE CONTINUATION COURSES FOR PHYSICIANS

Compiled by the Council on Medical Education and Hospitals for the Period January 1, 1951 to July 15, 1951

Table of Contents

Subject Page
Allergy 1285
Anatomy 1285
Anesthesiology 1286
Arthritis 1286
Bacteriology 1286
Basic Science 1286
Biochemistry 1286
Cardiovascular Disease 1287
Civilian Defense 1287
Dermatology and Syphilology 1287
Diabetes 1288
Electrocardiography 1288
Electroencephalography 1289
Endocrinology 1289
Endoscopy 1289
Subject Page
Fractures 1289
Gastroenterology 1289
Geriatrics 1290
Hematology 1290
Histology 1290
Industrial Medicine 1290
Internal Medicine 1290
Malignant Diseases 1291
Medicine, General 1291
Nuclear Science 1292
Neurology and Psychiatry 1293
Nutrition 1294
Obstetrics and Gynecology 1294
Ophthalmology and Otolaryngology 1295
Orthopedic Surgery 1296
Subject Page
Pathology 1296
Pediatrics 1297
Physical Medicine 1298
Physiology 1298
Physiological Chemistry 1298
Plastic Surgery 1298
Poliomyelitis 1298
Proctology 1298
Public Health 1298
Pulmonary Disease 1299
Radiology 1299
Surgery 1300
Therapy 1301
Urology 1301
Venereal Diseases 1301

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ALLERGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago, Ill.	Six month Personal Course in Allergy	By appointment, full time	$500.00
	One month Personal Course in Allergy	1st of every month, full time, by appointment	200.00
	Personal Course in Allergy and Related Conditions	April 18, 10 weeks, 10 sessions, part time	125.00
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Allergy	April 9-13, 5 days, full time	30.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich. At: Receiving Hospital	Allergy Clinic and Conference	March 12-June 9, part time	25.00
American College of Allergists, 423 LaSalle Medical Building, Minneapolis, Minn. At: Edgewater Beach Hotel, Chicago, Ill.	Graduate Instructional Course in Allergy	February 9-11, full time	35.00
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York At: Roosevelt Hospital	Medicine PM 81 Clinical Allergy	January 22-February 2, full time	120.00
At: Mt. Sinai Hospital	Medicine PM 36 Allergy	March 5-19, part time	40.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Allergy	Arranged, Spring, 8 sessions, part time	50.00
New York University Post-Graduate Medical School, 477 First Ave., New York At: University Hospital	5415-B Allergy	March 19-April 6, full time	225.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: Beth El Hospital	Allergy I	April, 9 sessions, part time	30 00
At: Kings County Hospital	Allergy II	April, 8 sessions, part time	20.00
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa. At: University of Pittsburgh School of Medicine	Diseases due to Immune Mechanisms	Spring 1951, 1 week	30.00 A.C.P mbrs. 60.00 non-mbrs.
	ANATOMY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago, Ill.	Anatomy of the Extremities of the Cadaver	March 14, 10 weeks, 10 sessions, part time	125.00
University of Maryland School of Medicine, 29 S. Greene St., Baltimore 1	General Anatomy	Time arranged	Arranged
	Surgical Anatomy	January-June, part time	150.00
Harvard Medical School Courses for Graduates, 25 Shattuck St., Boston, Mass.	Surgical Anatomy	March 5-April 27, 8 weeks, part time	200.00[1]
	Neuro-Anatomy	June 4-23, 3 weeks, full time	100 00[1]
	Anatomy of the Head and Neck	Jan. 2-Feb. 17, full time, 7 weeks	300.00[1]
	Anatomy of the Temporal Bone	Feb. 19-March 31, full time, 6 weeks	300.00[1]
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Surgical Anatomy	March 5-April 27, part time	250.00[1]
Michigan State Medical Society, 202 Olds Tower, Lansing, Mich At: Book Cadillac Hotel, Detroit	Michigan Postgraduate Clinical Institute	March 14-16, full time	Not given
Wayne Unversity College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Regional Anatomy (Head and Neck, Trunk, Extremities and Back)	March 12-June 9, 36 sessions, part time	50.00 each section
	Surgical Anatomy	2nd and 3rd quarters, 24 weeks, 24 sessions, part time	70.00
Essex County Medical Society, Newark, N. J. At: Newark City Hospital	Surgical Anatomy	February 19, 12 sessions, part time	150.00
Cornell University Medical College, 1300 York Ave., New York	Surgical Anatomy	June 1-30, full time	200.00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ANATOMY—Continued		
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Anatomy of the Abdomen	Arranged, 100 hours	$150.00
	Applied Anatomy for the General Surgeon	Arranged, 250 hours	375.00
	Anatomy of the Thorax	Arranged, 100 hours	150.00
	Applied Anatomy for the Anesthetist	Arranged, 125 hours	275.00
	Applied Anatomy for the Otolaryngologist	Arranged, 150 hours	275.00
	Applied Anatomy of the Urogenital System	Arranged, 130 hours	300.00
	Anatomy for the Orthopedic Surgeon	Arranged, 100 hours	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Head and Neck Dissection	Arranged, 4 weeks, part time	150.00
	Surgical Anatomy of Nose and Accessory Sinuses	Arranged, 4 weeks, part time	150.00
New York University Post-Graduate Medical School, 477 First Ave., New York *At: Bellevue and University Hospitals*	*060-A Anatomy and Physiology of the Autonomic Nervous System and Its Clinical Application*	*March 5-10, full time*	Not given
Western Reserve University, Department of Anatomy, 2109 Adelbert Rd., Cleveland 6, Ohio	Anatomy 11-G	Continuously, October 1 to April 30, part time	70.00 per month
Baylor University College of Medicine, 1200 M.D. Anderson Blvd., Houston 5, Texas	Anatomy of the Female Pelvis for General Practitioners	March 27-April 24, 5 sessions, part time	25.00
	ANESTHESIOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago, Ill.	Practical 2 week Course in Spinal and Intravenous Anesthesia	Every 2 weeks by appointment, full time	150.00
	Practical 1 month Course in Nitrous Oxide and Ether Anesthesia	1st of every month by appointment, full time	125.00
	Practical 1 month Course in Ether, Nitrous Oxide, Ethylene and Cyclopropane Anesthesia	1st of every month by appointment, full time	200.00
	Practical 2 week Course in Endotracheal Anesthesia	Every 2 weeks by appointment, full time	150.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: Jewish Hospital of Brooklyn	Anesthesiology	April, 6 weeks, 12 sessions, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Clinical Anesthesiology	Arranged, 3 months, full time	200.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York, N. Y.	Applied Anesthesia	January and April, 3 months, full time	300.00
	Anesthetic Technique	January and April, 6 weeks, full time	100.00
	Regional and Spinal Anesthesia	January and April, 6 weeks, full time	100.00
New York State Society of Anesthesiologists, 137 W. 11th St., New York, N. Y. At: Various Hospitals in New York State	Postgraduate Training Program in Anesthesiology	Continuously, variable time	None
New York University Post-Graduate Medical School, 477 First Ave., New York N. Y. At: Bellevue Hospital	512-C Regional Anesthesiology	April 30-May 11, full time	200.00
University of Pennsylvania, Graduate School of Medicine, Philadelphia 4, Pa. At: Graduate Hospital	Segmental Neuralgias Relief by Regional Anesthesia	Arranged, 3 weeks, full time	200.00
	ARTHRITIS		
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Rheumatic Disease	February 5-7, full time	30.00[1]
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: Jewish Hospital of Brooklyn	Arthritis	April, 8 weeks, 8 sessions, part time	30.00
Council of Rochester Regional Hospitals, 133 East Ave., Rochester 4, N. Y. At: The Genesee Hospital	Arthritis	June, 2 days, full time	None
	BACTERIOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Review of Microbiology (bacteriology) A Basic Course	March 15, 5 sessions, part time	75.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Virology	March 12-June 9, 36 sessions, part time	Not given
New York University Postgraduate Medical School, 477 First Ave., New York At: Bellevue Hospital	432-A Viruses and Virus Diseases	April 2-June 9, full time	211.00
	BASIC SCIENCE		
University of Colorado Medical Center, 4200 East Ninth Ave., Denver	Applied Medical Science	January 2-June 11, 5¼ months, full and part time	234.00 non residents 104.00 Colorado residents
University of Maryland School of Medicine, 29 S. Greene St., Baltimore 1	Basic Sciences applied to Obstetrics and Gynecology	January-June, full time	375.00
	BIOCHEMISTRY		
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: Beth El Hospital	Clinical Biochemistry	April, 10 weeks, 10 sessions, part time	30.00
University of Texas Postgraduate School of Medicine, 207 A Hermann Professional Bldg., Houston, Texas At: M. D. Anderson Hospital	Biometrics	February 1, 10 weeks, 10 sessions	25.00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan 1, 1951 to July 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	CARDIOVASCULAR DISEASES		
College of Medical Evangelists, 312 N Boyle Avenue, Los Angeles 33, Calif	Cardiology	January 9 March 13, 10 weeks, 10 sessions, part time	$50 00
Cook County Graduate School of Medicine, 427 S. Honore St, Chicago 12, Ill	Personal Course in Cardiovascular Disease	April 11, 10 weeks, 10 sessions, part time	80 00
Indiana University School of Medicine, 1040 W Michigan, Indianapolis, Ind	Postgraduate Symposium on the Heart	Feb 14, 1951, full time	None
Tulane University School of Medicine, 1430 Tulane Ave, New Orleans, La	Cardiology	Feb 19 March 2	100 00
Harvard Medical School, Courses for Graduates, 25 Shattuck St, Boston, Mass			
At: Beth Israel Hospital	Cardiology 1	January 29 May 12, 3½ months, full time	500 00 [1]
At: Peter Bent Brigham Hospital	Clinical Heart Disease	July 2 31, full time	200 00 [1]
Tufts College Medical School, Postgraduate Division, 30 Bennet St, Boston 11, Mass	Cardiology	March 12 16, full time	40 00 [1]
University of Michigan Medical School, Dept of Postgraduate Medicine, Ann Arbor, Mich			
At University Hospital	Diseases of the Heart	March 19 23, 5 days, full time	30 00
University of Minnesota, Center for Continuation Study, Minneapolis 14	Cardiovascular Diseases	February 15 17, full time	20 00
	Cardiovascular Diseases for General Physicians	May 24 26, full time	20 00
St. Francis Sanatorium for Cardiac Children, Roslyn, N. Y	Comprehensive PG course in Rheumatic Fever and Rheumatic Heart Disease	June 4 15, full time	100 00
Columbia University, 630 W. 168th St, New York, N. Y. At: Mt Sinai Hospital	Medicine PM 31 Cardiovascular Diseases	January 26 March 24, part time	125 00
	Medicine PM 46 Bedside Clinics in Heart Disease	February 19 April 9, part time	30 00
	Medicine PM 48 Bedside Diagnosis and Treatment of Heart Disease with Special Emphasis on Measurements of the Circulatory Dynamics	February 6-April 10, part time	45 00
At: Montefiore Hospital	Medicine PM 62 Supplementary Cardiology	January 30-June 5, part time	150 00
	Medicine PM 63 Advanced Cardiology	January 30-June 5, part time	250 00
New York Medical College, Flower and Fifth Ave Hospitals, 20 E 106th St, New York 29, N. Y.	Cardiology	Continuous (except July and August) [illegible]0 weeks, part time	150 00
New York Polyclinic Medical School and Hospital, 345 W. 50th St, New York 19	Diagnosis and Treatment of Diseases of the Heart	Arranged, 3 weeks, part time	75 00
New York State Department of Health, Albany 1, N Y At. New York University Postgraduate Medical School	Diseases of Heart and Vascular System	May 7 June 1, 4 weeks April 2 6 April 9 13 April 16 20	50 00 25 00 25 00 10 00
At: Columbia University, Mt Sinai Hospital	Diseases of Heart and Vascular System	January 26 March 24, 9 sessions January 8 13 January 15 19	15 00 5 00 5 00
New York University Postgraduate Medical School, 477 First Ave, New York			
At Beth Israel Hospital	631 B Cardiovascular Disease	March 29 June 14, 12 sessions, part time	50 00
At: University Hospital	5425 A Cardiology	May 7 June 1, full time	250 00
Cleveland Heart Society, 613 Public Square Bldg, Cleveland 13			
At: Western Reserve University and various Cleveland Hospitals	Resuscitation	Dec 14 16, Jan 25 27, Feb 15 17, Mar 15 17	Not given
Southwestern Ohio Society of General Physicians, Cincinnati, Ohio			
At: U Cincinnati College of Medicine	Cardiology	January 25-March 1, 6 weeks, 6 sessions, part time	10 00
American College of Physicians, 4200 Pine St, Philadelphia 4, Pa.	Modern Trends in Diagnosis and Treatment of Heart Disease	January 22 27	30 00 A C P mbrs 40 00 non mbrs.
At. University of Southern California, Los Angeles	Physiological Approach to clinical problems in the Cardiovascular Diseases	Spring 1951, 1 week	30 00 A C P mbrs. 60 00 non mbrs
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa	Cardiology	January and April, 8 weeks, 8 sessions, part time	80 00
	CIVILIAN DEFENSE		
Southwestern Ohio Society of General Practice, Cincinnati, Ohio			
At: Hotel Gibson, Cincinnati	Civilian Defense	January 14, 1 day	No fee
	DERMATOLOGY AND SYPHILOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave, Los Angeles 33, Calif	Dermatology	January 3 March 21, 12 sessions, part time	40 00
Cook County Graduate School of Medicine, 427 S Honore St, Chicago, Ill	12 month Clinical Course in Dermatology	By appointment, full time	1,000 00
	Clinical Refresher Course in Dermatology	Every Monday, 2 or more weeks, full time	75 00 Two weeks 125 00 Four weeks
	Intensive 2 weeks course in Dermatology	May 7, full time	100 00
Michael Reese Hospital Postgraduate School, 29th St and Ellis Ave, Chicago 16, Ill	Clinical Dermatology Refresher Course in Diseases of the Skin for General Practitioners	April 2 6, full time	50 00
Tufts College Medical School, Postgraduate Division, 30 Bennet St, Boston 11, Mass	Dermatology II	April 2 6, full time	40 00 [1]
Wayne University College of Medicine, 1512 St Antoine St, Detroit, Mich			
At: Receiving Hospital	Dermatology	January and April, 12 weeks, part time	15 00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
DERMATOLOGY AND SYPHILOLOGY—Continued			
University of Minnesota, Center for Continuation Study, Minneapolis 14, Minn.	Dermatology for General Physicians	April 5-7, full time	$20.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Dermatology PM 31 Occupational Diseases of the Skin	January 10-February 2, part time	15.00
	Dermatology PM 32 Venereal and Skin Diseases	May 15-25, part time	30.00
At: Montefiore Hospital	Dermatology PM 60A Common Skin Diseases and Treatment	March 5-May 28, part time	50.00
Cornell University Medical College, 1300 York Ave., New York	Exfoliative Cytology (Cytologic Diagnosis)	Spring, 2 weeks, full time	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York, N. Y.	Dermatology and Syphilology for the General Practitioner	Arranged, 5 days, full time	75.00
	Dermatology and Syphilology for specialists	Arranged, 5 days, full time	75.00
	Dermatologic Histopathology	Arranged, 5 days, full time	75.00
New York University Postgraduate Medical School, 477 First Ave., New York At: Bellevue and University Hospitals	522-A Seminar in Dermatology and Syphilology	January 15-19, full time	100.00
	523-A Symposium on Dermatology and Syphilology (for Dermatologists)	May 21-25, full time	100.00
Baylor University College of Medicine, 1200 M.D. Anderson Blvd., Houston, Texas	Diagnosis and Treatment of Common Skin Disorders	January 9-February 13, 6 sessions, part time	30.00
DIABETES			
University of Florida, Department of Medicine, Graduate School, Jacksonville, Fla. At: Lakeland, Fla.	Seminar on Diabetes	January 25-26	10.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Medicine and Surgical Diabetes	March 21, 10 weeks, 10 sessions, part time	80.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Diabetes	March 19-21, full time	30.00[1]
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: Jewish Sanitarium and Hosp. for Chronic Diseases	Complications of Diabetes Mellitus	April, 12 weeks, 12 sessions, part time	20.00
Southwestern Ohio Society of General Physicians, Cincinnati, Ohio At: Hotel Gibson, Cincinnati, Ohio	Diabetes	April 8, 1 day	10.00
ELECTROCARDIOGRAPHY			
University of California Medical Center, San Francisco, Calif.	Electrocardiography Cardiology	January 29-February 2, full time	Not given
Emory University School of Medicine, 36 Butler St., S.E., Atlanta, Ga.	Electrocardiography	February 20-24, full time	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago, Ill.	2 week personal course in Electrocardiography and Heart disease	March 19-July 16, full time	150.00
	Personal course in Electrocardiography and Heart Disease	February 14, 10 weeks, 10 sessions, part time	125.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	Electrocardiographic Interpretation	February 7-April 25, 12 sessions, part time	50.00
Indiana University School of Medicine, 1040 W. Michigan, Indianapolis, Ind.	Course in Electrocardiography	February 15-16, full time	25.00
University of Kansas Medical Center, Kansas City 3, Kans.	Electrocardiography	January 18-March 1, part time, 6 sessions	50.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Electrocardiography II	January 15-17, full time	25.00[1]
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Electrocardiography for General Physicians	May 7-12, full time	35.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Medicine PM 41 Intensive Course in Elementary Electrocardiography	January 8-13, full time	60.00
	Medicine PM 42 Intensive Course in Advanced Electrocardiography	January 15-19, full time	40.00
Joint Committee on Post Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: Beth El Hospital	Basic Electrocardiography	April, 6 weeks, 12 sessions, part time	20.00
At: Jewish Hospital of Brooklyn	Electrocardiography for the General Practitioner	April, 6 weeks, 18 sessions, part time	30.00
At: Maimonides Hospital	Clinical Cardiology and Advanced Electrocardiography	April, 5 weeks, 10 sessions, part time	20.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 E. 106th St., New York 29	Electrocardiography	Arranged, Spring, 2 weeks, part time	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19	Electrocardiographic Interpretation	Arranged, 2 weeks, part time	75.00
New York University Postgraduate Medical School, 477 First Ave., New York At: Beth Israel Hospital	682-B Electrocardiography	March 29-June 14, part time, 12 sessions	35.00
At: University Hospital	5423-B Electrocardiography	April 9-13, full time	75.00
University of Oklahoma School of Medicine, 800 N. E. 13th St., Oklahoma City At: University Hospital	Electrocardiography	February 19-24, full time	50.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Rd., Portland 1	Electrocardiography	June 11-15, full time	50.00
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa. At: Wayne University, Detroit, Mich.	Electrocardiography	March 26-31	30.00 A.C.P. mbrs. 60.00 non-mbrs.

References will be found on page 1301.

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ELECTROCARDIOGRAPHY—Continued		
At Massachusetts General Hospital, Boston	Electrocardiography Basic Principles and Interpretation	Spring 1051, 1 week	$30 00 A C P mbrs 60 00 non mbrs
Medical Society of the State of Pennsylvania, 230 State St, Harrisburg At Harrisburg Hospital	Special Course in Electrocardiography	May 17 June 29, 7 sessions, part time	35 00
	ELECTROENCEPHALOGRAPHY		
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa	Electroencephalography	Arranged, 2 weeks, full time	200 00 [2]
	ENDOCRINOLOGY		
College of Medical Evangelists, 312 N Boyle Ave, Los Angeles 33, Calif	Endocrinology	April 3 May 22, 8 sessions, part time	30 00
University of Southern California, 3518 University Ave, Los Angeles 7, Calif At San Diego, Calif	Endocrinology	January 19, 12 sessions, 12 weeks	50 00
Tulane University School of Medicine, 1430 Tulane Ave, New Orleans, La	Sterility and Endocrinology	March 19 24, full time	100 00
University of Michigan Medical School, Department of Postgraduate Medicine Ann Arbor, Mich At University Hospital	Endocrinology and Metabolism	March 26 30, 5 days, full time	30 00
Essex County Medical Society, Newark, N J At Seton Hall University, So Orange, N J	Endocrinology	January 8, 6 sessions, part time	40 00
Columbia University, 630 W 168th St, New York N Y At Mt Sinai Hospital	Medicine PM 38 Diseases of Metabolism	March 8 22, part time	40 00
	Medicine PM 39 Endocrinological Diseases	January 25 February 15, part time	30 00
Joint Committee on Postgraduate Education 1313 Bedford Ave, Brooklyn 16 N Y [14] At Beth El Hospital	Endocrine Disorders in Children and Adolescents	April, 8 sessions, 8 weeks, part time	20 00
At Jewish Hospital of Brooklyn	Gynecologic Endocrinology	April, 10 sessions, 10 weeks, part time	20 00
At Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Endocrinology	April, 14 sessions, 7 weeks, part time	30 00
New York Medical College, Flower and Fifth Ave Hospitals, 20 E 106th St New York 29, N Y	Endocrinology	Arranged, Spring, 2 weeks, full time	100 00
New York University Postgraduate Medical School 477 First Ave New York At University Hospital	542 B Endocrinology	April 23 27, full time	60 00
	567 C Gynecological Endocrinology	February 27 April 21 May 1 June 23 part time, 24 sessions	150 00
	ENDOSCOPY		
Cook County Graduate School of Medicine 427 S Honore St, Chicago, Ill	10 day practical Course in Cystoscopy	Jan 8, Jan 22, Feb 5, Feb 19 Mar 5, Mar 19, Apr 2, Apr 30, May 14, June 4, June 18, July 9, full time	150 00
Harvard Medical School Courses for Graduates 25 Shattuck St Boston, Mass At Massachusetts General Hospital	Endoscopy	January July, 3 months, full time	375 00 [1]
Columbia University, 630 W 168th St New York At Columbia Presbyterian Hospital	Medicine PM 2 Gastroscopy	Arranged, 2 months, part time	250 00
Joint Committee on Postgraduate Education 1313 Bedford Ave, Brooklyn 16, N Y [14] At Greenpoint Hospital	Gastroscopy	April, 6 sessions, 6 weeks	30 00
New York Medical College Flower and Fifth Ave Hospitals, 20 E 106th St, New York 29, N Y	Gastroscopy	Arranged, 2 weeks, part time	200 00
	Gastroscopy (Advanced)	Arranged, 5 weeks, part time	200 00
New York Polyclinic Medical School and Hospital 345 W 50th St, New York 19	Culdoscopy	Arranged, 6 sessions, part time	100 00
	Bronchoscopy	Arranged, 4 weeks, part time	150 00
New York University Post Graduate Medical School 477 First Ave, New York At University Hospital	566 C Cystoscopy and Endoscopy	February 19 March 26, May 14 June 18 15 sessions, part time	100 00
Temple University, 3400 N Broad St, Philadelphia 40 Pa	Laryngology and Laryngeal Surgery	Arranged, 2 weeks, full time	250 00
	Bronchoesophagology	Arranged 2 weeks, full time	250 00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa	Bronchoesophagology, Gastroscopy and Laryngeal Surgery	January and June, 2 weeks, full time	250 00
	FRACTURES		
Cook County Graduate School of Medicine 427 S Honore St, Chicago, Ill	Intensive 2 weeks course in Fractures and Traumatic Surgery	March 19 and June 18, full time	125 00
	Special Course in Fractures	March 21, 10 weeks, 10 sessions	125 00
	Clinical Course in Fractures	1st of every week, 1 or 2 weeks, full time	50 00 1 week 100 00 2 weeks
University of Minnesota Center for Continuation Study, Minneapolis, Minn	Fractures and Traumatic Surgery for General Physicians	March 26 28, full time	20 00
Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn 16, N Y [14] At King County Hospital	Fractures	April, 10 sessions, 10 weeks	20 00
New York Medical College Flower and Fifth Ave Hospitals, 20 E 106th St, New York 29, N Y	Fractures and Allied Trauma	Arranged Spring, 3 weeks, full time	200 00
	GASTROENTEROLOGY		
University of California Medical Center, San Francisco 22, Calif	Clinical Science as applied to General Medicine Part III Gastroenterology	Feb 5 April 9, part time, 10 sessions	Not given
Cook County Graduate School of Medicine, 427 S Honore St, Chicago 12, Ill	2 week personal Course in Gastroscopy and Gastroenterology	March 5 May 14, June 11, July 16, full time	200 00
	2 week course in Gastroenterology	May 14 2 weeks, full time	100 00
	Personal Course in Gastroenterology	April 11 10 sessions, 10 weeks	100 00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	GASTROENTEROLOGY—Continued		
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Diseases of the Gastrointestinal Tract	April 23-27, 5 days, full time	$30.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich. At: *Receiving Hospital*	Gastroenterology	January and April, 12 weeks, part time	15.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Medicine PM 32 Gastrointestinal Diseases	January 24-March 21, part time	80 00
	Medicine PM 45 Intensive Course in Gastroenterology	April 2-6, full time	60.00
At: Montefiore Hospital	Medicine PM 70 Gastroenterology	January 30-May 15, part time	75.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: Jewish Hospital of Brooklyn	Gastroenterology I	April, 6 weeks, 12 sessions	20.00
At: Jewish Sanitarium and Hospital for Chronic Diseases	Gastroenterology II	April, 6 weeks, 12 sessions	20.00
New York University Post Graduate Medical School, 477 First Ave., New York At: University Hospital	5421-B Gastroenterology	June 4-15, full time	115 00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Gastroenterology	Arranged, Spring, 1 month, part time	100.00
	GERIATRICS		
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Geriatrics for Physicians	January 4-6, full time	20.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 47 Geriatrics	February 1-May 24, part time	65.00
	HEMATOLOGY		
University of California Medical School, University Extension, Los Angeles 24, Calif. At: Veterans Administration Center, Sawtelle, W. Los Angeles	Advanced Hematology	February 7-March 28, part time, 8 sessions	Not given
University of Southern California, 3518 University Ave., Los Angeles 7, Calif. At: Los Angeles County Hospital	Hematology #338	January 9-February 13, part time, 12 sessions	50.00
University of Florida Graduate School, Dept. of Medicine, Jacksonville, Fla	Hematology Seminar	June 21-23, full time	25 00[3]
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Hematology	April 4, 10 weeks, 10 sessions, part time	100 00
	1 week Personal course in Hematology	July 9, full time	100 00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Hematology II	May 7-19, full time	100.00[1]
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Diseases of the Blood and Blood forming organs	April 16-20, 5 days, full time	30.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Advanced Hematology	March 12-June 9, 12 sessions, part time	50.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Hematology and Allergy for General Physicians	April 26-28, full time	20.00
Columbia University, 630 W. 168th St., New York At: Mt. Sinai Hospital	Medicine PM 35 Hematology	January 23-March 20, part time	60.00
At: Montefiore Hospital	Medicine PM 66 Clinical Hematology	January 30-June 5, part time	75.00
	Medicine PM 67 Advanced Hematology	February 6-May 15, part time	75.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: Jewish Hospital of Brooklyn	Clinical Hematology	April, 8 sessions, part time	20.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa. At: Bryn Mawr Hospital, Bryn Mawr, Pa.	Clinical and Laboratory Hematology	February and April, 6 weeks, full time	200.00
	HISTOLOGY		
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Histology	Arranged, 5 weeks, full time	300.00
	INDUSTRIAL MEDICINE		
New York University Post Graduate Medical School, 477 First Ave., New York At: Bellevue and University Hospitals	482-A Industrial Dermatoses	April 2-20, part time	100.00
	483-A The Pneumoconioses	March 12-April 6, part time	150.00
University of Pittsburgh School of Medicine, 3941 O'Hara St., Pittsburgh, Pa.	Graduate Course in Industrial Medicine	Continuously, 18 months	Fellowship grants
	INTERNAL MEDICINE		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Differential Diagnosis and Treatment of Internal Disease	January 8-March 26, 12 weeks, part time	50 00
	Varicose Veins	March 1-April 5, 6 sessions, part time	25.00
Emory University School of Medicine, 36 Butler St., S. E., Atlanta, Ga. At: Grady Memorial Hospital	General Internal Medicine	2 weeks to 12 months, arranged	125.00[4]
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	2 week Intensive Course in Internal Medicine	April 23, full time	75.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	Recent Advances in Internal Medicine	April 30-May 12, full time	100.00
University of Kansas Medical Center, Kansas City 3, Kans.	Internal Medicine including Dermatology and Psychiatry	March 19-22, full time	25.00
Tulane University of Louisiana, School of Medicine, 1430 Tulane Ave., New Orleans, La.	Recent Advances in Internal Medicine	March 12-17, full time	50 00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

INTERNAL MEDICINE—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston, Mass.			
At: Boston City Hospital	Internal Medicine 2	June 1-August 31, 3 months, full time	$375.00[1]
At: Massachusetts General Hospital	Internal Medicine 3	June 18 July 27, 6 weeks, full time	250.00[1]
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.			
At: Receiving Hospital	Medical Seminar	Quarterly, January and April, 12 sessions, part time	15.00
	Medical Conference	Quarterly, January and April, 12 sessions, part time	15.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14]			
At: Jewish Hospital of Brooklyn	Diarrheal Diseases	April, 10 weeks, 10 sessions	20.00
Columbia University, 630 W. 168th St., New York			
At: Mt. Sinai Hospital	Medicine PM 30 Symposium on Internal Medicine	January 22-March 24, full time	350.00
Cornell University Medical College, 1300 York Ave., New York			
At: Bellevue Hospital, Second Medical Division	Internal Medicine	Continuously, 1st of each month 3 or 6 months, full time	500.00 6 mos. 250.00 3 mos.
New York Medical College, Flower and Fifth Ave. Hospitals, 29 E. 106th St., New York 29, N. Y.	Internal Medicine	Monthly (except July and August) 1-2 months, full time	150.00 1 mo. 300.00 2 mos.
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Treatment of Varicose Veins	Arranged, 4 weeks, part time	50.00
New York University Post Graduate Medical School, 477 First Ave., New York			
At: Bellevue and University Hospitals	5419-A Symposium on Internal Medicine	June 18-29, full time	115.00[5]
	5428-B Internal Medicine	March 5-May 25, 4, 8 or 12 wks., part time	250.00[6]
Oklahoma State Medical Association, 1227 Classen, Oklahoma City, Okla.			
At: 40 Principal Towns and Cities in the State	Internal Medicine	10 weeks in each center, 1 lecture a week	20.00
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa.	Internal Medicine	Spring 1951, 1 week	30.00 A.C.P. mbrs. 60.00 non-mbrs.
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa.			
At: Boston University School of Medicine	Internal Medicine	Spring 1951, 1 week	30.00 A.C.P. mbrs. 60.00 non-mbrs.
At: Marquette University School of Medicine, Milwaukee	Internal Medicine	Spring 1951, 1 week	30.00 A.C.P. mbrs. 60.00 non-mbrs.
At: University of Oregon Medical School, Portland	Recent Progress in Internal Medicine	March 19-23, 5 days, full time	30.00 members 60.00 non-members

MALIGNANT DISEASES

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis, Ind.	Postgraduate Symposium on Malignant Diseases	April 4-5, full time	None
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich.			
At: University Hospital	Cancer	January 16-19, 4 days, full time	25.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14]			
At: Brooklyn Cancer Institute	Newer Concepts in Diagnosis and Treatment of Neoplastic Diseases	April, 8 weeks, 16 sessions	30.00
Columbia University, 630 W. 168th St., New York, N. Y.			
At: Montefiore Hospital	Medicine PM 72 Neoplastic Diseases	February 6-June 5, part time	150.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Newer Concepts in the Physiology and Biochemistry of Cancer	Arranged, 6 weeks, part time	150.00

MEDICINE, GENERAL

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Medical College of Alabama, Birmingham, Ala.			
At: Selma, Ala.	Postgraduate Instruction for General Practitioners	Every 2 months, 1 session	15.00 per year
	Postgraduate Seminar	Every 2 months, 3 hours per week	15.00 per year
At: Medical College of Alabama	Postgraduate Seminar	January 14-16, full time	Not given
California Medical Association, 1026 N. Center, Stockton 3, Calif.			
At: Various Centers in Calif.	Medical and Surgical Institutes	January, February and March, 2 days in each center	3.00
Los Angeles County Medical Association, 1925 Wilshire Blvd., Los Angeles 5, Calif.			
At: San Fernando Branch, East Los Angeles Branch	Practical Medicine Lecture Series	Continuous, 3 hours per week	None
University of California Medical Center, San Francisco 22, Calif.			
At: Mt. Zion Hospital	Course for General Practitioners	March 5-9, full time	Not given
At: University Extension, Los Angeles	Mycotic Infections in Man	February 13-April 3, 8 sessions, part time	Not given
George Washington University School of Medicine, 1335 H St., N.W., Washington, D. C.	General Medicine	March 5-9, 5 days, full time	60.00
University of Florida Graduate School of Medicine, Jacksonville, Fla.			
At: George Washington Hotel	19th Annual Graduate Short Course	June 25-30, full time	10.00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	MEDICINE, GENERAL—Continued		
Medical College of Georgia, University Place, Augusta	Refresher Course for General Practitioners	March 20-23, full time	$10 00
Cook County Graduate School of Medicine, 427 S. Honore St, Chicago 12, Ill	Biochemical Background of Clinical Medicine, a Basic Course	March 14, 10 weeks, 10 sessions	100 00
	Physical Diagnosis	March 14, 10 weeks, 10 sessions	80 00
	Intensive Personal Course in Liver and Biliary Tract Diseases	June 4, 1 week, *full time*	100 00
	Personal Course in Medical Emergencies, Diagnosis and Treatment	March 14, 10 weeks, 10 sessions	80 00
Chicago Medical Society, 30 N. Michigan Ave, Chicago 2, Ill At Palmer House	Annual Clinical Conference	March 6-9, full time	5 00 *non members*
Illinois Academy of General Practice, Blue Island, Ill. At: Rockford, Peoria, Bloomington, Kankakee, Joliet, Belleville and Herrin, 3 in Cook County	Postgraduate School	40 weeks, forty hours, once a week	35 00 members AAGP 75 00 non members
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La.	The Specialties as Applied to General Practice	April 9-14, full time	50 00
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Rheumatic Disease	April 2 6, 5 days, full time	30 00
Michigan State Medical Society, 202 Olds Tower, Lansing, Mich At. Book Cadillac Hotel, Detroit	Michigan Postgraduate Clinical Institute	March 14 16, full time	Not given
Atlantic City Hospital, Atlantic City, N. J.	Recent Advances in General Practice	Continuously, 5 days, full time	None
Albany Medical College, Albany, N Y.	Medicine (including Ekg, Endocrine and Metabolic Disorders, Chest Diseases and Hematology)	January 4, 4 to 7 weeks, part time	Variable
Columbia University, 630 W. 168th St, New York At: Mt Sinai Hospital	Medicine PM 33 Diseases of the Liver	January 22 February 5, part time	35 00
	Medicine PM 34 Diseases of the Kidneys	February 19 March 1, part time	35 00
	Medicine PM 40 Principles and Practices of Diet Therapy	February 19 March 26, part time	20 00
	Medicine PM 49 Diagnosis and Treatment of Ambulatory Patients	February 7-April 13, part time	30 00
At: Montefiore Hospital	Medicine PM 65 Peripheral Vascular Diseases	February 8 June 7, part time	75 00
New York Polyclinic Medical School and Hospital, 345 W. 50th St, New York	General Practitioner's Course	Arranged, 4 weeks, full time	100 00
	General Medicine	Arranged, 4 weeks, full time	100 00
New York University Post Graduate Medical School, 477 First Ave, New York At: Bellevue and University Hospitals	5414 B Arthritis and Allied Rheumatic Disorders	February 26 March 16, 3 weeks, full time	125 00
	5418 B Peripheral Vascular Disease	April 2 6, full time	75 00
	5424 B Nephritis and Hypertension	*April 16 20*, full *time*	*60 00*
Joint Committee on Postgraduate Education, 1313 Bedford Ave, Brooklyn 16, N. Y.[14] At: Beth El Hospital	Peripheral Vascular Diseases I	April, 10 weeks, 10 sessions	30 00
At: Jewish Hospital of Brooklyn	Peripheral Vascular Diseases II	April, 5 weeks, 10 sessions	20 00
	Hypertension and Nephritis	April, 8 sessions, 8 weeks	20 00
Duke University School of Medicine, Durham, N. C. At: Duke Hospital	Refresher Course for General Practitioners	March 19 23 and June 11-15, 5 days, full time	25 00
American College of Physicians, 4200 Pine St, Philadelphia 4, Pa At New York University-Bellevue and Goldwater Hospitals	Dynamic Therapeutics in Chronic Diseases	Spring 1951, 1 week	30 00 A C P mbrs 60 00 non mbrs
Medical Society of the State of Pennsylvania, 230 State St., Harrisburg, Pa. At: 10 centers in State	Graduate Education Institute	Spring 1951, 5 sessions in each center	25 00
Dallas Southern Clinical Society, 433 Medical Arts Bldg, Dallas 1, Texas	Clinical Conference	March 26 29, full time	Not given
	Postgraduate Course	January 8 10, full time	Not given
Mid South Postgraduate Assembly, 899 Madison Ave, Memphis, Tenn At: Peabody Hotel, Memphis	Mid South Post Graduate Medical Assembly	February 13 16, full time	10 00
Postgraduate Medical Assembly of South Texas, 229 Medical Arts Bldg, Houston, Texas At: Shamrock Hotel, Houston, Texas	17th Annual Meeting	July 23 25, 3 days, full time	20 00
Prairie View Post Graduate Medical Assembly At: Prairie View A. and M, College, Texas	Prairie View Postgraduate Medical Assembly	1st week in March, 5 days, full time	None
	NUCLEAR SCIENCE		
University of Michigan School of Public Health, Ann Arbor, Mich	Radiological Health	February 5 8, full time, 4 days	Not given
Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.	Radioisotope Techniques	January thru June, 4 weeks, full time	25 00
	Advanced Medical Course (Radioisotope Field)	February 5 19, 2 weeks, full time	25 00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan 1, 1951 to July 15, 1951—Continued

NUCLEAR SCIENCE—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
University of Texas Postgraduate School of Medicine, 207 A Hermann Professional Bldg Houston, Texas At M D Anderson Hospital	Advanced Course in Radiological Physics	February, 4 weeks, 4 sessions	$5 00

NEUROLOGY AND PSYCHIATRY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Los Angeles Institute for Psychoanalysis, 407 Commercial Center St, Beverly Hills, Calif	Professional School Courses	Arranged, 6 months, part time	232 00
University of Colorado Medical Center, 1200 East Ninth Ave, Denver	Psychosomatic Medicine	February, 1 week, full time	None
Yale University School of Medicine, 333 Cedar St, New Haven 11 Conn			
At Connecticut State Hospital, Middletown	*Psychological Aspects of Behavior and Clinical Psychology*	*January 8 February 5, part time*	5 00
At U S Veterans Hospital, Newington, Conn	Classics of Psychoanalysis	January 5-February 16 part time	5 00
At New Britain Memorial Hospital, New Britain, Conn	Geriatric Psychiatry	March 7 April 4 part time	5 00
At Hartford Hospital	Psychiatry in the Practice of Medicine and Surgery	March 2 April 6 part time	5 00
At Southbury Training School	Pediatric Neurology	April 9 30 part time	5 00
At Yale University	Forensic Psychiatry	March 5 26 part time	5 00
	Pediatric Psychiatry	January 3 February 14 part time	5 00
Catholic University of America, Washington 17, D C	Seminar in Psychotherapy I	February 1 May 15 part time, 15 sessions	30 00 [1]
	Child Psychiatry II	February 1 May 15 part time, 15 sessions	30 00 [1]
	Psychopathology	February 1 May 15 part time, 15 sessions	30 00 [1]
At St Elizabeths Hospital, Washington, D C	Clinical Psychiatry	February 1 May 15 part time, 15 sessions	30 00 [1]
Cook County Graduate School of Medicine, 427 S Honore St, Chicago 12, Ill	Personal Course in Neuropathology	By appointment	20 00 per hour
	Personal Course in Clinical Neurology	March 14, 10 sessions 10 weeks	80 00
Michael Reese Hospital Postgraduate School 29th St and Ellis Ave, Chicago 16 Ill	Rorschach Test Seminar	June 4 8, full time	50 00
University of Kansas Medical Center, Kansas City 3 Kans	Applied Neurology	April 30 May 3, full time	25 00
Tulane University School of Medicine, 1430 Tulane Ave, New Orleans, La	Psychiatry and Neurology	June 18 23, full time	50 00
Massachusetts Dept of Mental Health, Boston, Mass At Boston Psychopathic Hospital	Postgraduate Seminar in Neurology and Psychiatry	March 14 May 2, 8 sessions, part time	None
At Metropolitan State Hospital	Review Course in Basic Neurology and Psychiatry	March 2 May 11, part time, 11 sessions	None
University of Michigan Medical School, Dept of Postgraduate Medicine, Ann Arbor, Mich At University Hospital	Clinical Neurology	May 14 17, 4 days, full time	30 00
Wayne University College of Medicine, 1512 St Antoine St, Detroit, Mich	Problems in Neurology	March 12 June 10, 12 sessions, part time	35 00
University of Minnesota, Center for Continuation Study, Minneapolis 14 Minn	Clinical Neurology	January 29 February 10, full time	70 00
Columbia University, 630 W 168th St, New York At Columbia Presbyterian Medical Center	Neurology PM 2 Clinical Electroencephalography and Electromyography	Any 3 months between Oct 1 and March 31, full time	150 00
At Mt Sinai Hospital	Neurology PM 30 Clinical Neurology	April 9 13, full time	60 00
	Psychiatry PM 30 Psychiatry in General Medicine	*January 9 May 22, part time*	*100 00*
	Neurology PM 34 Laboratory Training in Clinical Electroencephalography	Any three months, full time	150 00
At Montefiore Hospital	Neurology PM 61 Advanced Neurology	January 2 March 30, April 2 June 29, full time	150 00
New York Medical College, Flower and Fifth Ave Hospitals, 20 E 106th St, New York 29, N Y	Psychoanalysis and Psychiatry	January 8, 15 sessions, part time	40 00
New York University Postgraduate Medical School 477 First Ave, New York At Bellevue Hospital	612 A Electroencephalography	January 29 March 24, part time	300 00
	613 A Treatment Methods in Psychiatry	January 15-March 10, part time	300 00
	644 A Psychiatry in Industry	March 5 17, part time	150 00
	645 A Psychiatry and the Law	*January 22 March 22, part time*	300 00
Joint Committee on Postgraduate Education, 1313 Bedford Ave, Brooklyn 16, N Y [11] At Jewish Sanitarium and Hosp for Chronic Diseases	Clinical Neurology	April, 8 sessions 8 weeks	20 00
At Jewish Hospital of Brooklyn	Child Psychiatry	April, 10 sessions, 10 weeks	20 00
Council of Rochester Regional Hospitals, 133 East Ave, Rochester 4, N Y At Strong Memorial Hospital	Psychiatry in General Practice	April, 5 days, full time	None
American Institute for *Psychoanalysis*, 220 W 98th St, New York	Readings in Psychoanalysis Part III The Works of Karen Horney	February 9, 20 weeks, part time	40 00
	Psychiatry and Psychoanalysis	*February 15, 15 weeks, part time*	70 00
	Continuous Case Seminar	February 12 10 weeks, part time	70 00 [7]
	Clinical Conferences	February 15, 10 weeks, part time	0 00 [7]
	The Psychoanalytic Process	February 13, 15 weeks, part time	45 00 [7]
	The Psychoanalytic Relationship	February 16 12 weeks, part time	36 00 [7]
	Love and Sex in Health and Neurosis	February 5, 15 weeks, part time	17 50
	Seminar on Personal Case Histories	February 6, 15 weeks, part time	30 00
Postgraduate Center for Psychotherapy, 218 E 70th St, New York 21, N Y	Psychological Tests in Psychotherapy	Dec 15 Jan 19, 5 weeks, part time	15 00
	Psychopathology and Psychodynamics of Obsessions and Compulsions	February 10, 1 day	10 00
	Crime and Psychiatry	February 17, 1 day	10 00
	Psychopathology and Psychotherapy of Homosexuality	February 3, 1 day	10 00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

NEUROLOGY AND PSYCHIATRY—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Postgraduate Center for Psychotherapy, 218 E. 70th St., New York	Projective Techniques in Child Psychotherapy Part I	January 20, 1 day	$10 00
	Projective Technique in Child Psychotherapy Part II	January 27, 1 day	10 00
	Advanced Techniques of Dream Interpretation	December 13-January 17, 5 sessions, part time	40 00
	Problems of Adolescence	January 13, 1 day	10 00
	A Community Psychotherapeutic Center	December 13-January 17, 5 sessions, part time	15 00
	Techniques of Casework Psychotherapy	December 13-January 17, 5 sessions, part time	15 00
Postgraduate Center for Psychotherapy, Inc., 218 E. 70th St., New York 21, N. Y.	Principles of Child Psychiatry	Feb 9-June 1, 15 sessions	40 00
	Clinical Conference	Feb. 7-May 23, 15 sessions	25 00
	Continuous Case Seminar	Feb. 6-May 22, 15 sessions	35 00
	Readings in Psychiatry	Feb. 9-July 1, 8 sessions	20 00
	Integrative Psychotherapy	Feb. 6 March 6, 5 sessions	20 00
	Basic Neuropsychiatry	Feb. 16-May 25, 7 sessions	20 00
	Research Techniques in Community Health Problems	Feb. 6-Apr. 17, 10 sessions	30 00
	Short Term Psychotherapy Utilizing Psychoanalytic Techniques	Feb. 7-Apr. 18, 10 sessions	40 00
	Somatic Complications occuring during Psychotherapy	Feb. 8-Mar. 9, 5 sessions	15 00
	Workshop in Community Project	Arranged, February 9	20 00
	Supervisory Techniques in Psychotherapy	Apr. 25-May 23, 5 sessions	20 00
	Studies in Community Mental Health	Mar. 16 June 1, 10 sessions	25 00
	Clinical Conference in the Psychoanalysis of Groups	March 1-May 24, 12 sessions	30 00
	Treatment of the Alcoholic	March 3, 1 day	10 00
	Anthropology and its relationship to Psychiatry	March 10, 1 day	10 00
	The Treatment of Schizophrenia (Psychiatrists only)	March 17, 1 day	10 00
	The significance of spontaneous Art Productions in Diagnosis and Therapy	April 7, 1 day	10 00
	The treatment of Depression (Psychiatrists only)	April 14, 1 day	10 00
	Public Health Aspects of Psychiatry	April 21, 1 day	10 00
	The Management of Family Problems	May 12, 1 day	10.00
	Psychodrama and Sociadrama	May 19, 1 day	10 00
	Workshop in advanced Projective Techniques	Feb. 8-May 31, 15 sessions	40 00
	Psychotherapy with Adults	Feb. 8-May 31, 15 sessions	30 00
	Psychiatric Seminar for Physicians	Feb. 8-May 31, 15 sessions	30 00
	Anthropological Aspects of Psychiatry	Feb. 8-April 26, 10 sessions	30 00
	Mental Health in the School	Feb. 8-May 31, 15 sessions	25 00
	Seminar on Diagnosis and Treatment Planning of Child Psychotherapy	Feb. 8-May 31, 15 sessions	30 00
	Advanced Psychotherapeutic Techniques	Feb. 7-April 18, 10 sessions	40 00
	Continuous Case Seminar	Feb. 7-May 23, 15 sessions	30.00
Medical College of the State of South Carolina, Charleston, S. C.	Neuro-Psychiatric Seminar	March, 2 days	No fee

NUTRITION

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Nutrition	Arranged, 1 month, part time	150 00

OBSTETRICS AND GYNECOLOGY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
University of Colorado Medical Center, 4200 East Ninth Ave., Denver, Colo	Postgraduate Course in Obstetrics and Gynecology	Last week in April, 2 days	20 00
State University of Iowa College of Medicine, Iowa City, Iowa	Conference in Obstetrics and Gynecology	March, 2 days, full time	10 00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago, Ill.	Personal Course in Vaginal Approach to Pelvic Surgery	Mar. 5, Apr. 2, May 7, June 11, 1 week, full time	100 00
	Intensive 2 week course in Gynecology	Feb. 19, Mar. 19, April 16 and June 18, full time	150 00
	Personal Course in Office Gynecology	Jan. 10, Feb. 7, Apr. 4, and May 16, 4 weeks, 4 sessions	80 00
	Personal course in Gynecologic Surgery	Jan. 11, Feb. 8, Apr. 5, May 17, 4 weeks, part time	80.00
	Intensive 2 week Course in Obstetrics	Mar. 5, Apr. 2 and June 4, full time	150 00
	Personal Course in Surgical Obstetrics	Jan. 3, April 4 and June 6, 4 sessions, 4 weeks	100 00
	Personal Course in General and Office Obstetrics	Jan. 31, May 2, July 11, 4 weeks, 4 sessions	80 00
State University of Iowa College of Medicine, Iowa City, Iowa	Conference in Obstetrics and Gynecology	March, 2 days, full time	10 00
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans, La.	Obstetrics for Specialists	April 2-7, full time	50 00
University of Maryland School of Medicine, 29 S. Greene St., Baltimore At: University Hospital	Gynecology and Obstetrics (Clinical)	Arranged, 12 weeks, full time	150 00
	Gynecology, Oncology and Female Urology	Arranged, 10 weeks, full time	125 00
Harvard Medical School Courses for Graduates, 25 Shattuck St., Boston, Mass. At: Boston Lying-in Hospital	Clinical Obstetrics	April and May, 1 month, full time	150 00[1]
At: Massachusetts General Hospital	Gynecology 1	Throughout the year, 3-12 months, full time	800 00[1] 12 months

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan 1, 1951 to July 15, 1951—Continued

OBSTETRICS AND GYNECOLOGY—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
At: Free Hospital for Women	Gynecology 2	June 1 month, full time	$150 00[1]
University of Michigan Medical School, Dept of Postgraduate Medicine, Ann Arbor, Mich At Maternity Hospital	Obstetrics and Gynecology	February 19 March 3, 2 weeks, full time	100 00
University of Minnesota, Center for Continuation Study, Minneapolis 14	Gynecology for General Physicians	April 9 11, full time	20 00
Essex County Medical Society, Newark, N. J At Seton Hall University Campus	Gynecology 31G	February 24, 15 sessions, part time	100 00
Columbia University, 630 W 168th St, New York At Mt Sinai Hospital	Gynecology PM 30 Recent Advances in Gynecology	March 26 31, full time	65 00
At. Margaret Hague Maternity Hospital	Obstetrics PM 80 Internship training	1st of Each Month, 3 months, full time	350 00
	Obstetrics PM 81 Observation course	1st of Each Month, 1 month, full time	100 00
New York Polyclinic Medical School and Hospital, 345 W 50th St, New York	Clinical Gynecology	Arranged, 6 weeks, part time	75 00
	Clinical and Operative (cadaver) Gynecology	Arranged, 6 weeks, part time	175 00
	Clinical Course in Office and General Obstetrics	Arranged, 4 weeks, part time	100 00
	Manikin Obstetrics	Arranged, 4 weeks, part time	150 00
	Obstetrics and Gynecology Including Manikin Ob and Operative Gyn (cadaver)	April, 2 months, full time	250 00
New York University Post Graduate Medical School, 477 First Ave, New York At. University Hospital	561 B Seminar in Gynecology	February 26 April 21, April 30 June 23 8 weeks, full time	300 00
	562 B Gynecology Diagnosis and Office Treatment	January 29 February 21, April 30 May 21 10 sessions, part time	50 00
	563 B Gynecology Diagnosis and Office Treatment	January 15 February 19, April 2 May 4 15 sessions, part time	75 00
	568 C Vaginal Cytology (for specialists)	February 27 April 19, May 1 June 21 16 sessions, part time	100 00
	569 C Surgical Anatomy as applied to Gynecology (cadaver) for Specialists	January 30-February 27, April 3 28 / 12 sessions, part time	200 00
At Beth Israel Hospital	684 B Gynecology for Specialists	February 5 May 25, 16 weeks, part time	250 00
	685-A Gynecology for General Practitioners	April 30 June 7, 12 sessions, part time	65 00
Joint Committee on Postgraduate Education, 1313 Bedford Ave, Brooklyn 16, N Y[14] At St John's Episcopal Hospital	Office Gynecology	April, 8 sessions, 8 weeks	20 00
At Greenpoint Hospital	Sterility	April, 12 sessions, 12 weeks	40 00
At State University Medical Center at New York, College of Medicine	Manikin	April, 8 weeks, 16 sessions	30 00
University of Oregon Medical School, 3181 S W Sam Jackson Park Rd, Portland 1	Obstetrics	February 5 7, full time	30 00
University of Washington School of Medicine, Seattle 5, Wash	Postgraduate Course in Gynecology	April 2 5, full time	40 00

OPHTHALMOLOGY AND OTOLARYNGOLOGY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
College of Medical Evangelists, 312 N Boyle Ave, Los Angeles 33, Calif	Ophthalmology	January 30 March 20, 8 weeks, part time	30 00
	Histology and Histopathology of the Eye	February 28 June 20, 17 sessions, part time	75 00
Research Study Club of Los Angeles, Los Angeles, Calif At Elk's Club, Los Angeles	20th Annual Mid Winter Postgraduate Convention in Ophth and Oto	January 15 26, 2 weeks, full time	125 00
Stanford University School of Medicine, 2398 Sacramento St, San Francisco	Stanford Spring Postgraduate Conference in Ophthalmology	March 19 23, full time	75 00
The Children s Memorial Hospital, 707 Fullerton Ave, Chicago 14, Ill	Postgraduate Conference in Neuromuscular Anomalies of the Eyes (for Specialists)	April 8 13, full time	75 00
Cook County Graduate School of Medicine, 427 S Honore St, Chicago 12, Ill	2 week Clinical Course in Otolaryngology	1st of every week, full time	50 00
	2 weeks Clinical Course in Ophthalmology	1st of every week, full time	50 00
University of Illinois College of Medicine, 1853 W Polk St, Chicago 12, Ill	Current trends in Otolaryngology	May, 1 week, full time	75 00
	Bronchoesophagology	February and May, 2 weeks, full time	150 00
Indiana University School of Medicine, Indianapolis, Ind	Clinical and Anatomical Course in Otorhinolaryngology	April 2 14, full time	250 00
State University of Iowa College of Medicine, Iowa City, Iowa	Symposium on External Ocular Diseases (for Specialists)	March 20 21, full time	50 00
University of Kansas Medical Center, Kansas City 3, Kans	Ophthalmology and Otorhinolaryngology	April 16 20, 5 days, full time	30 00
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave, New Orleans, La	Ocular Pharmacology and Therapeutics for Specialists	February 19 24, 1 week, full time	100 00
	Ocular Pathology for Specialists	February 12 17, 5 days, full time	100 00
Ophthalmic Study Council, 243 Charles St, Boston, Mass	Lancaster Courses in Ophthalmology	June 26 Sept 9, full time	300 00
Tufts College Medical School, Postgraduate Division, 30 Bennet St, Boston 11, Mass	Ophthalmoscopy	April 30 May 25, 4 weeks, part time	50 00[1]
	Neuroophthalmology	March 5 9, full time	75 00[1]
University of Michigan Medical School, Dept of Postgraduate Medicine, Ann Arbor, Mich At University Hospital	Ophthalmology Conference	April 23 25, 3 days, full time	25 00
Wayne University College of Medicine, 1512 St Antoine, Detroit, Mich	*Basic Ophthalmology*	*September June 8, full time*[8]	*900 00*
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn	Ophthalmology for Specialists	January 22 27, full time	35 00
Columbia University, 630 W 168th St, New York At Columbia Presbyterian Medical Center	Otolaryngology PM 1 Bronchoscopy	April 9 27, part time	250 00
At: Montefiore Hospital	Ophthalmology PM 60 Elementary Ophthalmoscopy	January 5 March 2, part time	30 00
	Ophthalmology PM 61 Perimetry	March 12 May 7, part time	30 00
At. Mt. Sinai Hospital	Ophthalmology PM 39A Ophthalmoscopy in General Practice	February 5 April 2, part time	25 00
	Ophthalmology PM 43 Symposium in Ophthalmology	April 30 May 26, full time	200 00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Advanced Physiological Optics	Arranged, 30 hours, part time	$100.00
	Operative Ophthalmology (cadaver)	Arranged, 4 weeks, part time	100.00
	Operative Otology (cadaver)	Arranged, 4 weeks, part time	100.00
	Operative Nose and Throat (cadaver)	Arranged, 4 weeks, part time	150.00
	Seminar in Otolaryngology and Ophthalmology	Arranged, 5 days, full time	50.00
	Clinical Ophthalmology	Arranged, 6 weeks or 3 months, part time	75.00[9]
	Clinical Otolaryngology	Arranged, 6 weeks or 3 months part time	100.00[10]
	Clinical Ophth. and Oto.	Arranged, 6 weeks or 3 months, full time	150.00[11]
	Otolaryngology and Ophthalmology including cadaver, EENT and refraction	January and April, 3 months, full time	600.00
	Refraction	Arranged, 4 weeks, part time	100.00
	Advanced Otology	Arranged, 2 weeks, part time	250.00
	Ophthalmology including cadaver, ophth. and refraction	Arranged, 3 months, part time	300.00
	Motor Anomalies	Arranged, 4 weeks, part time	50.00
	Symposium on Otolaryngology and Ophthalmology	April 16-20, full time	50.00
New York University Post-Graduate Medical School, 477 First Ave., New York At: Bellevue Hospital	595 A Bronchoscopy, Esophagoscopy and Laryngeal Neck Surgery	January 15-26, full time	200.00
	571-A Motor Anomalies of the Eye Part 1 (for Specialists)	March 5-10, full time	100.00
	572-A Motor Anomalies of the Eye Part 2 (for Specialists)	March 12-16, full time	75.00
	573-B Ophthalmic Neurology (for Specialists)	February 26-March 2, part time	50.00
	574-B Surgery of the Eye (for Specialists)	March 19-24, full time	100.00
	575 B Differential Diagnosis with the Slit Lamp (for Specialists)	February 26-March 2, part time	75.00
	577-B External Diseases of the Eye (for Specialists)	February 26-March 2, part time	75.00
	578-B Ocular Expressions of Systemic Disease	February 26-March 2, part time	75.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: Jewish Sanitarium and Hosp. for Chronic Diseases	External Eye Diseases	April, 8 sessions, 8 weeks	20.00
	Ophthalmoscopy	April, 8 sessions, 8 weeks	20.00
University of Oregon Medical School, 3181 S.W. Sam Jackson Park Rd., Portland 1, Ore.	Postgraduate Course in Ophthalmology and Otolaryngology	March 25-30, 2½ days for Ophth. 2½ days for Oto.	50.00 for one 75.00 for both
Gill Memorial EENT Hospital, 711 S. Jefferson St., Roanoke, Va.	24th Annual Spring Graduate Course in Ophthalmology-Otology, Rhinology-Laryngology, Facio-Maxillary Surgery, Bronchoscopy-Esophagoscopy	April 2-7, full time	75.00

ORTHOPEDIC SURGERY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Minor Orthopedic Surgery	April 12-May 31, 8 sessions	30.00
	Diseases and Injuries of Bones and Joints	July 9-30, full time	100.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston, Mass. At: Children's Hospital	Orthopedic Surgery 1	Throughout the year, 1-12 months, full time	800.00[1] for 12 months
At: Massachusetts General Hospital	Orthopedic Surgery 2	Throughout the year, 3-12 months, full time	800.00[1] for 12 months
At: Massachusetts General and Children's Hospital	Orthopedic Surgery 3	Throughout the year, 1-3 months, full time	200.00[1] for 3 months
Columbia University, 630 W. 168th St., New York At: Hospital for Joint Diseases	Orthopedic Surgery PM 80 Survey of the Essentials of Orthopedics	March 1-May 10, part time	100.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Orthopedics in General Practice	April and May, 6 weeks, 6 sessions	60.00
	Orthopedics of the Foot	Arranged, 2 months, 8 sessions	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Orthopedic Surgery for General Surgeons	Arranged, 3 months, part time	75.00
	Operative Orthopedics (cadaver)	Arranged, 5 sessions, part time	100.00
	Advanced Orthopedics of the Foot	Arranged, 8 sessions, part time	100.00
New York University Post Graduate Medical School, 477 First Ave., New York At: Bellevue and University Hospitals	583-B Functional Anatomy in Relation to Orthopedic Surgery	January 15-26, part time	75.00
	581-A Seminar in Orthopedic Surgery (for Specialists)	January 29-February 9, full time	125.00
	582-B Orthopedics in General Practice	May 14-19, full time	60.00

PATHOLOGY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
University of California, University Extension, Los Angeles 24, Calif.	Surgical Pathology	March 3-April 21, 8 sessions, part time	75.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Pathology and Laboratory Medicine	April 4, 10 sessions, 10 weeks	100.00
	12 month Department Course in Gross and Surgical Pathology	By appointment, full time	900.00
	12 month Course in Gross and Microscopic Pathology	By appointment, full time	500.00
	6 Month Clinical Course in Gross and Microscopic Pathology	By appointment, full time	500.00
	Personal Course in Surgical Pathology on Selective Subjects	By appointment, 1 or 2 weeks, full time	15.00 per hr.
	Personal Course in Surgical Pathology	By appointment every month, 2 or 4 weeks, full time	150.00 2 weeks 250.00 4 weeks

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan 1, 1951 to July 15, 1951—Continued

PATHOLOGY—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
University of Maryland School of Medicine, 29 S Greene St, Baltimore 1, Md	Pathology (Neurological)	Arranged, 6 months, full time	$200 00 [12]
	Pathology 'B'	Arranged, 6 months, full time	150 00
Harvard Medical School Courses for Graduates, 25 Shattuck St, Boston, Mass At Free Hospital for Women	Pathology of Obstetrics and Gynecology	January 4 May 24, 21 sessions, part time	150 00 [1]
Wayne University College of Medicine, 1512 St Antoine St, Detroit, Mich	Gynecologic Pathology	March 12 June 9, 12 weeks, part time	50 00
Columbia University, 630 W 165th St, New York At Mt Sinai Hospital	Pathology PM 31 Surgical Pathology	January 13 April 21, part time	100 00
New York Medical College, Flower and Fifth Ave Hospitals, 20 E 106th St, New York 29, N Y	Pathology	Arranged, 16 weeks, part time	200 00
	Clinical Pathology	Arranged, 26 hours	100 00
New York Polyclinic Medical School and Hospital, 345 W 50th St New York	Surgical Pathology	Arranged, 3 months, part time	300 00
	Urological Pathology	Arranged, 3 months, part time	50 00
	Blood Transfusions	Arranged, 2 weeks part time	100 00
	Pathology	Arranged 3 months, part time	300 00
	Pathology	Arranged, 12 months, part time	1,000 00
	Pathology for Surgeons	Arranged 1 month, part time	100 00
New York University Post Graduate Medical School, 477 First Ave, New York At University Hospital	441 B Gynecological Pathology for Specialists	January 23 March 15, part time, 16 sessions	100 00
	442 B Surgical Pathology for Specialists	March 20 June 28, 30 sessions, part time	200 00
At Bellevue and University Hospitals	444 A Pathology in Relation to Orthopedic Surgery	February 7 April 25, 12 sessions, part time	90 00
At Lenox Hill Hospital	686 B Pathology for Surgeons	April 2 May 10, 12 sessions, part time	50 00
	657 B Histopathology for Gynecologists	April 3 May 11, 12 sessions, part time	50 00
Baylor University College of Medicine, 1200 M D Anderson Blvd, Houston, Texas	Ophthalmic Pathology	February and March, 16 sessions, part time	10 00
	Ophthalmic Pathology		
	Gyn and Ob Pathology	January June, 24 sessions, part time	10 00
		March 1 May 10, 10 weeks 20 sessions	10 00
University of Texas Postgraduate School of Medicine, 207 A Hermann Professional Bldg, Houston, Texas At M D Anderson Hospital	Clinical Pathology for the Physician in General Practice	March 29 April 19, 4 sessions	10 00
University of Washington School of Medicine Seattle 5, Wash	Pathology of Surgical Diseases	March 19 23, full time	50 00

PEDIATRICS

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
University of California Medical Center, San Francisco 22, Calif	Pediatrics	June 18 22, full time	Not given
University of Colorado Medical Center, 4200 E Ninth Ave, Denver	Institute on Newborn and Premature Infant Care	February 5 9	10 00 registration fee
Cook County Graduate School of Medicine, 427 S Honore St, Chicago, Ill	2 week intensive course in Pediatrics	April 2, full time	100 00
	2 week intensive course in Cerebral Palsy	July 30, full time	150 00
	12 month department course in Pediatrics	July 1, full time	750 00
	2 week intensive course in diagnosis and treatment of congenital and acquired heart disease in infants and children	June 4, full time	150 00
	Informal refresher course in Clinical Pediatrics	Every week, 2 or 4 weeks, full time	60 00 2 weeks 100 00 4 weeks
Michael Reese Hospital Postgraduate School 29th St and Ellis Ave, Chicago 16 Ill	Personal course in Pediatrics	March 31, 10 weeks, part time	80 00
	Recent Advances in Pediatrics	May 14 26, full time	100 00
Tulane University of Louisiana School of Medicine 1430 Tulane Ave, New Orleans, La	Pediatrics (for Specialists)	February 12 17, full time	50 00
Harvard Medical School, Courses for Graduates 25 Shattuck St Boston Mass At Children's Hospital	Pediatrics 2	January 2 April 28, full time	500 00 [1]
At Massachusetts General Hospital	Pediatrics 3	June 11 23, full time	125 00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn	Pediatrics for General Physicians	March 1 3 full time	20 00
	Pediatrics for Specialists	April 16 18, full time	20 00
Columbia University 630 W 168th St, New York At Mt Sinai Hospital	Pediatrics PM 30 Clinical Pediatrics	February 6 April 17, part time	80 00
New York Medical College, Flower and Fifth Ave Hospitals, 20 E 106th St, New York 29, N Y	Clinical Pediatrics	Continuously, 1 3 6 9 12 months, full time	150 00 [10]
	Pediatric Allergy	1st 2 weeks in May, full time	200 00
New York Polyclinic Medical School and Hospital, 345 W 50th St, New York	Pediatrics	Arranged, 4 weeks, part time	75 00
New York State Department of Health, Albany 1, N Y At University of Buffalo [20]	Refresher Courses in Pediatrics	May 14 26, 2 weeks	Not given
		June 4 16 2 weeks	Not given
New York University Post Graduate Medical School, 477 First Ave, New York At University Hospital	612 C Clinical Pediatrics	April 9 May 5, 4 weeks, full time	150 00
	613 B Practical Clinical Pediatrics	Feb 5 March 3, May 7 June 2, full time	125 00
	614 B Review of Clinical Pediatrics	March 12 17, May 14 19, full time	60 00
	616 A Pediatric Allergy	Feb 13 April 17, 10 sessions, part time	60 00
	619 A Pediatrics Cardiology	April 14 June 13, 10 sessions, part time	60 00
At Lenox Hill Hospital	688-B Pediatrics	April 3 May 25 16 sessions, part time	50 00
Joint Committee on Postgraduate Education, 1313 Bedford Ave, Brooklyn 16, N Y [14] At Beth El Hospital	Clinical Pediatrics	April, 5 weeks, 10 sessions	30 00
Baylor University College of Medicine, 1200 M D Anderson Blvd, Houston, Tex	Postgraduate Course in Pediatrics	April 9 14, 1 week	None
	Postgraduate Course in Pediatric Mental Health	January 15-20, 1 week	None

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PHYSICAL MEDICINE		
University of Kansas Medical Center, Kansas City 3, Kans	Physical Medicine and Rehabilitation	February 19 21, full time	$20 00
New York Polyclinic Medical School and Hospital, 345 W 50th St, New York	Physical Medicine	Arranged, 4 weeks, part time	100.00
New York University Post Graduate Medical School, 477 First Ave, New York *At: Bellevue, University Hospitals and Institute of* Physical Medicine and Rehabilitation	621 B Physical Medicine and Rehabilitation	January 15 October 13, full time	600 00
	622 A Physical Medicine and Rehabilitation	January 15 and April 16, 12 or 24 weeks, full time	200 00 12 weeks 400 00 24 weeks
	623 B Physical Medicine and Rehabilitation	January 15 February 24, 6 weeks, full time	100 00
Joint Committee on Postgraduate Education, 1313 Bedford Ave, Brooklyn 16, N. Y.[14] At: Kings County Hospital	Physical Medicine and Rehabilitation	April, 6 weeks, 12 sessions	20 00
	PHYSIOLOGY		
Cook County Graduate School of Medicine, 427 S Honore St, Chicago 12, Ill	Clinical Physiology, A Basic Course	March 13, 10 sessions, 10 weeks	100 00
Columbia University, 630 W. 168th St, New York At: Mt Sinai Hospital	Physiology of Water and Electrolyte Balance	January 31 April 6, part time	40 00
New York Medical College, Flower and Fifth Ave Hospitals, 20 E 106th St, New York, N Y.	Applied Physiology	Arranged, 36 hours, part time	300 00
	Physiology of the Cardiovascular System and Blood	Arranged, 1 month, part time	75 00
	Physiology of Respiration	Arranged, 1 month, part time	75 00
	Physiology of the Nervous System	Arranged, 2 weeks, part time	50 00
	Physiology of the Special Senses	Arranged, 1 month, part time	75 00
	Physiology of the Endocrine System	Arranged, 1 month, part time	75 00
	Physiology and Chemistry of the Gastrointenstinal Tract, Digestion	Arranged, 1 month, part time	150 00
New York University Post Graduate Medical School, 477 First Ave, New York At: University Hospital	5420 B Normal and Pathological Physiology Functional and Chemical Aspects	March 19 30, full time	115 00
University of Pittsburgh School of Medicine, Pittsburgh 13, Pa.	Pathological Physiology for Clinicians	Throughout academic year, 32 sessions	50 00
	PHYSIOLOGICAL CHEMISTRY		
Wayne University College of Medicine, 1512 St Antoine St, Detroit, Mich	Physiological Chemistry Seminar	Every quarter, 12 weeks, part time	15 00
	PLASTIC SURGERY		
American Otorhinologic Society for the Advancement for Plastic Surgery, Inc, New York At. Manhattan General Hospital	Rhinoplasty and Otoplasty (for Specialists)	February 12 March 17, full time	500 00
	POLIOMYELITIS		
The National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y At: Orthopaedic Hospital, 2400 S Flower St, Los Angeles, Calif	Poliomyelitis Teamwork in Total Care	February and June, 4 days, full time	15 00
At University of Colorado Medical Center, 4200 F Ninth Ave, Denver	Poliomyelitis Postgraduate Course for Physicians	Third week in May, 3 5 days, full time	20 00[1]
At: Children's Hospital, 300 Longwood Ave, Boston, Mass.	Treatment of Acute Poliomyelitis	Middle of June and middle of August, 5 days, full time	50 00
At: D T. Watson School of Physiatrics, Leetsdale 16 Pa	Essentials in Care of Acute Poliomyelitis	Summer—minimum of 5 days	10 00
At: Georgia Warm Springs Foundation, Warm Springs, Ga.	Care of Acute and Convalescent Poliomyelitis	First Monday of Jan, April, July	No fee
	PROCTOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave, Los Angeles 33, Calif	Proctology	Jan 4 March 8, 10 sessions, part time	50 00
Cook County Graduate School of Medicine, 427 S Honore St, Chicago 12, Ill	Lecture and Cadaver Course in Proctology	Jan 5, Feb 16 and April 20, 5 weeks, part time	75 00
Tufts College Medical School, Postgraduate Division, 30 Bennet St, Boston 11, Mass	Proctology I	April 23 27, full time	40 00[1]
	Proctology II	April 30 May 25, full time	250 00[1]
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn	Proctology for General Physicians	April 16 21, full time	35 00
New York Polyclinic Medical School and Hospital, 345 W. 50th St, New York	Proctology Gastroenterology Operative Proctology (cadaver)	January and April, 6 weeks, part time	200 00
	Clinical Proctology and Gastroenterology	January and April, 6 weeks, part time	100 00
	Clinical Proctology	Arranged, 6 weeks, part time	75 00
	Clinical and Cadaver Proctology	Arranged, 6 weeks, part time	175 00
	Clinical Gastroenterology	Arranged, 6 weeks, part time	75 00
Joint Committee on Postgraduate Education, 1313 Bedford Ave, Brooklyn 16, N. Y.[14] At: Jewish Hospital of Brooklyn	Proctology	April, 6 weeks, 12 sessions	40 00
	PUBLIC HEALTH		
U. S. Public Health Service, Atlanta, Ga.	Laboratory Diagnosis of Syphilis	February 12 23, March 12 23, April 16-27, June 4 15, full time	None
	Laboratory Diagnosis of Bacterial Diseases, Part I General Bacteriology	February 26 March 9, full time	None
	Part II General Bacteriology	March 12 23, full time	None

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PUBLIC HEALTH—Continued		
U. S. Public Health Service, Atlanta, Ga.	Laboratory Diagnosis of Parasitic Diseases, Part I Intestinal Parasites	March 5-23, full time	None
	Part II Blood Parasites	March 26-April 13, full time	None
	Laboratory Diagnosis of Enteric Diseases, Part 1 Introductory Enteric Bacteriology	March 26-30, full time	None
	Part 2 Advanced Enteric Bacteriology	April 2-13, full time	None
	Laboratory Diagnosis of Mycotic Diseases, Part 1 Cutaneous and Subcutaneous Fungi	April 16-27, full time	None
	Part 2 Systemic Fungi	April 30-May 11, full time	None
	Laboratory Diagnosis of Tuberculosis	April 16-27, April 30-May 11, full time	None
	Laboratory Diagnosis of Virus Diseases	April 16-May 11, full time	None
	Laboratory Diagnosis of Venereal Diseases	May 7-11, full time	None
	Laboratory Diagnosis of Mycotic Diseases	May 14-18, full time	None
	Laboratory Diagnosis of Tuberculosis	May 14-18, full time	None
	Treponema Pallidum Immobilization	May 14-18, full time	None
	Laboratory Diagnosis of Rabies	May 14-18, full time	None
	Clinical Chemistry, Part I Introductory and General Procedures	May 14-18, full time	None
	Part 2 Quantitative Analysis	May 21-June 1, full time	None
	Laboratory Diagnosis of Parasitic Diseases	May 21-25, full time	None
	Laboratory Diagnosis of Bacterial Diseases	May 21-25, full time	None
	Laboratory Diagnosis of Virus Diseases	May 21-25, full time	None
University of Kansas Medical Center, Kansas City 3, Kans.	Public Health and Preventive Medicine	February 12-14, 3 days, full time	None
Tulane University of Louisiana, School of Medicine, 1430 Tulane Ave., New Orleans 12, La.	Public Health Seminar	January 22-27, full time	$50.00
New York State Department of Health, 76 State St., Albany 1, N. Y. At: Various locations in N. Y. State	Laboratory Physician-in-Training	Any time during year, 12 months	No fee
	Residency in Public Health Practice	Continuously, 6 to 24 months	No fee
	PULMONARY DISEASE		
American College of Chest Physicians, 500 N. Dearborn St., Chicago 10, Ill. At: University of California, San Francisco, Calif.	Recent Advances in Diseases of the Chest	February 13-17, full time	50.00
At: Hotel Warwick, Philadelphia, Pa.	Recent Advances in Diseases of the Chest	April, 5 days, full time	50.00
At: Vanderbilt University, Nashville, Tenn.	Recent Advances in Diseases of the Chest	January 22-26, full time	50.00
At: Milwaukee Children's Hospital, Milwaukee, Wis.[17]	PG Course in Diseases of the Chest for the General Practitioner	April—4 consecutive Wednesday afternoons	25.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in the Technic of Physical Examination and Diagnosis of the Chest	April 18, 8 sessions, 8 weeks	60.00
Mississippi State Sanatorium, Sanatorium, Miss.	Diseases of the Chest, Internal Medicine	1 week to 6 months, continuously	None
American Trudeau Society, 1790 Broadway, New York 19, N. Y. At: Marquette University School of Medicine, Milwaukee, Wis.	Pulmonary Diseases (for internists)	March 26-31, full time	50.00
Trudeau School of Tuberculosis, 7 Church St., Saranac Lake, N. Y.	Trudeau School of Tuberculosis	May, 4 weeks	100.00
Columbia University, 630 W. 168th St., New York At: Bellevue Hospital	Medicine PM 80 Diseases of the Chest	February 1-March 2, full time	75.00
At: Montefiore Hospital	Medicine PM 71 Diseases of the Chest	January 5-May 18, part time	100.00
At: Mt. Sinai Hospital	Medicine PM 37 Diseases of the Chest	January 23-March 20, part time	60.00
At: Columbia Presbyterian Hospital	Medicine PM 1 Physiologic Therapy in Pulmonary Tuberculosis and Chronic Non-Tuberculosis Pulmonary Disease	January 22-27, full time	40.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Pulmonary Tuberculosis	June, 3 weeks, full time	175.00[18]
	Diseases of the Chest	March and April, 2 months, part time	100.00
New York University Post Graduate Medical School, 477 First Ave., New York At: Bellevue and University Hospitals	5416-A Acute and Chronic Pulmonary Disease	February 26-March 2, full time	55.00
	RADIOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	12 month Course in Diagnostic Roentgenology and X-ray Therapy	By appointment, full time	750.00
	8 month Course in Diagnostic Roentgenology	By appointment, full time	500.00
	High and Low Voltage X-ray Therapy	1st of every week, one or more weeks, full time	60.00[15] 1 week
	Routine Clinical Course in Diagnostic Roentgenology and Fluoroscopy	3rd Monday of every month, 2 weeks, full time	70.00
	2 week Clinical and Didactic Course in Diagnostic Roentgenology and Fluoroscopy	1st Monday of each month, full time	125.00
	Clinical Interpretation of X-ray Findings	March 15, 10 weeks, 10 sessions	80.00
University of Kansas Medical Center, Kansas City 3, Kans.	Diagnostic X-ray and Fluoroscopy	March 22-April 26, part time, 6 sessions	25.00
	Roentgenological Physics	February and March, 8 sessions, part time	25.00
	Radiology	January 8-10, 3 days, full time	20.00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

RADIOLOGY—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Harvard Medical School Courses for Graduates, 25 Shattuck St., Boston, Mass.			
At: Peter Bent Brigham Hospital	General Radiology 1	Monthly, throughout the year, 1 month, full time	$150.00[1]
At: Massachusetts General Hospital	General Radiology 2	Monthly, throughout the year, 1 month, full time	150.00[1]
At: Boston City Hospital	General Radiology 3	Monthly, throughout the year, 1 month, full time	150.00[1]
At: Children's Hospital	Pediatric Radiology	Monthly, throughout the year, 1 month, full time	150.00
Tufts College Medical School, 30 Bennet St., Boston 11, Mass.	Radiology	March 6-9, full time	35.00[1]
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich.			
At: University Hospital	Diagnostic Roentgenology	April 16-20, 5 days, full time	30.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Medical X-ray Conference	Quarterly, January and April, 12 weeks, part time	15.00
Columbia University, 630 W. 168th St., New York			
At: Columbia Presbyterian Medical Center	Radiology PM 1 Radiological Physics	January 15-April 6, part time	25.00
At: Hospital for Joint Diseases	Radiology PM 80 Roentgenographic Interpretation of the Diseases of the Bones and Joints	March 7-May 23, part time	150.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Diagnostic Roentgenology	Arranged, 6 weeks, part time	150.00
	Radium and Roentgen Therapy	Arranged, 6 weeks, part time	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	Roentgen Interpretation and Technic	January and April, full time, 3 months	300.00
	Advanced Diagnosis, Roentgenology and Radiotherapy	January and April, full time, 3 months	300.00
	Diagnostic Roentgenology and Radiation Therapy	January and April, full time, 12 months	1,000.00
	Practical Course in Superficial and Deep X-ray Therapy	Arranged, 4 weeks, part time	100.00
	Advanced Course in Radiotherapy	Arranged, 4 weeks, part time	100.00
New York University Post Graduate Medical School, 477 First Ave., New York			
At: University Hospital	652 B Diagnostic Radiology	February 19-May 11, part time	100.00
	654 A Radiobiology	February 1-June 21, part time	125.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[11]			
At: Jewish Hospital	Cardiovascular Roentgenology	April, 8 sessions, part time	20.00
At: Jewish Sanitarium and Hosp. for Chronic Diseases	Clinical Radiology	April, 10 sessions, 10 weeks	20.00
At: Beth El Hospital	Roentgen Diagnosis in Gastroenterology	April, 8 sessions, 8 weeks	20.00

SURGERY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Thoracic Surgery	May 2-June 20, 8 weeks, part time	30.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Intensive 2 weeks Course in Surgical Technic	Jan. 22, Feb. 5 and 19, March 5 and 19, April 2, 16 and 30, May 14, June 4 and 18, July 9, full time	200.00
	4 week Course in Surgical Technic, Clinical Surgery, Surgical Anatomy, Pre- and Postoperative Management	February 5, March 5, April 2 and 30, June 4 and July 9, full time	300.00
	2 week Personal Course in General Surgery	April 16, full time	250.00
	1 week Personal Course in Surgery of Colon and Rectum	March 5, April 9, May 14, June 4, full time	100.00
	2 week Course in Surgical Anatomy on the Cadaver, Clinical Surgery, Pre- and Postoperative Management	February 19, March 19, April 16, May 14 and June 18, full time	150.00
	1 week Personal Course in Breast and Thyroid Surgery	June 25, full time	150.00
	10 hour Personal Course in Gallbladder Surgery	April 23 and June 18, full time, 3 days	100.00
	2 week Intensive Review Course Considering Basic Principles in General Surgery	April 2, full time	200.00
	Personal Course in Surgical Pathology, Gross and Microscopic	March 14, 10 weeks, 10 sessions	100.00
	Surgical Anatomy on the Cadaver	March 15, 10 weeks, 10 sessions	125.00
	Personal Course in Clinical Surgery	March 8, 10 weeks, 10 sessions	150.00
	Surgical Technic with Practice	February 14, 10 weeks, 10 sessions	200.00
	Personal Course in Surgical Diagnosis, Pre- and Postoperative Management	April 4, 10 weeks, 10 sessions	100.00
	Lecture Course in Basic Principles Concerned in General Surgery	March 23, 10 weeks, 10 sessions	100.00
	Practical and Didactic Course in Proctoscopy and Sigmoidoscopy	Jan. 16, Feb. 6, March 13, April 17, May 22, June 19, July 10, part time, 3 weeks	50.00
	10 hour Course in the Treatment of Varicose Veins	Every Monday, 2 days, full time	40.00
	10 hour Course in the Treatment of Varicose Veins	1st and 3rd Wednesday, each month, part time	40.00
	Personal Course in Esophageal Surgery	April 3, 10 weeks, 10 sessions	150.00
	1 week Personal Course in Esophageal Surgery	June 4, full time	150.00
	Personal Course in Thoracic Surgery	April 4, 10 weeks, 10 sessions	100.00
	1 week Personal Course in Thoracic Surgery	June 11, full time	100.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave., Chicago 16, Ill.	Recent Advances in Surgery	April 23-28, full time	50.00
University of Kansas Medical Center, Kansas City 3, Kans.	Surgery including Urology, Orthopedics and Industrial Surgery	January 29-February 2, full time	30.00

References will be found on page 1301.

Postgraduate Courses for Practicing Physicians—Jan. 1, 1951 to July 15, 1951—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	SURGERY—Continued		
Harvard Medical School Courses for Graduates, 25 Shattuck St., Boston, Mass. At: Massachusetts General Hospital	Experimental and Clinical Surgery	Arranged, 6-12 months, full time	$800.00[1] for 12 months
Tufts College Medical School, 30 Bennet St., Boston 11, Mass.	Principles of Surgical Technique	May 21-June 29, 6 weeks, part time	250.00[1]
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Surgery Seminar	January and April, 12 weeks, part time	15.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Surgery for General Physicians	May 17-19, 3 days, full time	20.00
Essex County Medical Society, Newark, N. J. At: Newark City Hospital	Surgery of the Autonomic Nervous System	February 16, 8 sessions, part time	100.00
Columbia University, 630 W. 168th St., New York At: Several Affiliated Hospitals	Surgery PM 100 Recent Developments in Surgery	May 14-18, full time	50.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York, N. Y.	Thoracic Surgery	Arranged, 3 weeks, full time	325.00
	Surgical Technique	Arranged—50 hours	375.00
	Combined Surgical Course	January and April, 3 months, full time	350.00
New York Polyclinic Medical School and Hospitals, 345 W. 50th St., New York 19	Clinical Surgery	January and April, 6 weeks, full time	100.00
	Clinical and Operative (Cadaver) Surgery	January and April, 6 weeks, full time	200.00
	Traumatic Surgery Including General Surgery, Orthopedic Surgery and Physical Medicine	Arranged, 2 months, part time	200.00
New York University Post Graduate Medical School, 477 First Ave., New York At: Bellevue and University Hospitals	661-B Review of General Surgery for Specialists	April 2-28, 4 weeks, full time	300.00
	662-A The Basic Problems in Cancer Therapy for Specialists	January 22-February 3, full time	200.00
	6813-A Surgery of the Hand	March 26-31, 6 days, full time	100.00
	6814-A Seminar in Traumatic Surgery	February 5-17, full time	150.00
	6815-A Surgery of Trauma	April 5-June 7, part time, 10 sessions	100.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: St. John's Episcopal Hospital	Office Surgery	April, 8 sessions, part time	20.00
Cleveland Clinic and Bunts Educational Institute, Euclid Ave. at E. 93rd St., Cleveland, Ohio At: Cleveland Clinic	Elective Surgery of the Gastro-intestinal Tract	Spring, 2½ days	15.00
University of Oregon Medical School, 3181 S.W. Sam Jackson Park Rd., Portland 1	General Surgery	March 12-16, full time	50.00
	THERAPY		
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Recent Advances in Therapeutics	May 3-5, 3 days, full time	15.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[14] At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Therapeutics	April, 7½ weeks, part time	40.00
	UROLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	General Urology	January 3-February 28, 9 weeks 9 sessions	35.00
University of California, University Extension, San Francisco 22, Calif. At: Franklin Hospital	Urology	March 26-29, full time	Not given
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago, Ill.	2 week intensive course in Urology	April 16, full time	225.00
State University of Iowa College of Medicine, Iowa City, Iowa	Urology for the General Practitioner	April, 1 day	5.00
New York University Post Graduate Medical School, 477 First Ave., New York At: Bellevue, University and Affiliated Hospitals	671-A Advanced Course in Urology (for Specialists)	February 5-March 31, full time	350.00
American Urological Association, South Central Section, 4105 Live Oak St., Dallas, Tex. At: Palm Garden, Adolphus Hotel, Dallas, Tex.	Postgraduate Urological Seminar[13]	January 29-February 2, full time	50.00
	VENEREAL DISEASES		
U. S. Public Health Service, Hot Springs National Park, Ark.	Venereal Disease PG Course	April 16-20, full time	None
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich. At: Social Hygiene Clinic, Detroit	Conference on Venereal Disease	Quarterly, 12 weeks, part time	15.00
University of Pennsylvania, Institute for the Study of Venereal Disease, Hygiene Bldg., Philadelphia 4	6 months Essential Basic Training Course	Arranged, 6 months, full time	Arranged
	4 weeks Intensive Review Course	Arranged, 4 weeks, full time	Arranged
	3 weeks Venereal Disease Review Course	Arranged, 3 weeks, full time	Arranged
	10 day Refresher Course in Venereal Disease Control	Arranged, 10 days, full time	Arranged

---

[1] $5.00 Registration fee.

[2] Stated 2 week period may be followed by additional studies at $100 per week. Course may also be taken by Philadelphia area physicians on 6 consecutive Thursdays, 36 hours at $150.00.

[3] Tentative

[4] $12 per week for short periods.

[5] $60.00 for 5 days.

[6] For 12 weeks. $175—8 weeks; $100—4 weeks.

[7] Advanced candidates-in-training only.

[8] Applications for 1951 class accepted now until March.

[9] 3 months $100.

[10] 3 months $150.

[11] 3 months $250.

[12] Plus $10 laboratory fee.

[13] Of especial value to candidates for American Board of Urology.

[14] Medical Society of the County of Kings, State University Medical Center at New York, College of Medicine.

[15] 2 weeks $110; 1 month $200; 2 months $300.

[16] Sponsored by University of Pittsburgh also.

[17] Sponsored by Milwaukee chapter American Academy of General Practice also.

[18] No charge for room and board.

[19] For 1 month; $250 for 3 months; $450 for 6 months; $650 for 9 months; $850 for 12 months.

[20] Restricted to physicians licensed to practice in N. Y. State.

CURRENT MEDICAL LITERATURE

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

220:237-356 (Sept.) 1950

Effect of Potassium and Electrocardiogram in Normal Dog and in Dogs with Myocardial Infarction. S. Bellet, P. C. Gazes and W. A. Steiger.—p. *237.*

Effect of Different Grades of Myocardial Infarction on Tolerance of Potassium: Experimental Study in Dogs. S. Bellet, W. A. Steiger and *P. C. Gazes.—p. 247.*

Bernheim's Syndrome Considered in Light of Fatal Case. E. B. Wilson and S. L. Zimmerman.—p. 257.

Sudden and Unexpected Natural Death: III. Spontaneous Subarachnoid Hemorrhage. M. Helpern and S. M. Babson.—p. 262.

*Sickle Cell Anemia in White Race: Study of Family with Review of Genetic Theories. R. A. Guyton, R. W. Heinle.—p. 272.

Subacute Erythremic Myelosis: Report of Case in Filipino. V. de la Fuente.—p. 276.

*Leukemia in Radiologists in 20 Year Period. H. C. March.—p. 282.

Adrenal Cortical Function in Essential Hypertension: Study of Sweat Sodium Concentration. S. Eisenberg, R. Buie Jr. and L. Tobian Jr. —p. 287.

Experience with Protein Bound Iodine (PBI): Effect of ACTH and Cortisone on *Thyroid Function. J. D. Hardy, C. Riegel* and E. P. Erisman.—p. 290.

Miliary Tuberculosis of Liver: Liver Biopsy as an Adjunct to Diagnosis. M. M. Mansuy and W. J. Seiferth.—p. 293.

Polarographic Studies of Proteins and Their Degradation Products: III. Polarographically Determined Protein Index in Arthritic and Other Diseases. O. H. Müller and J. S. Davis Jr.—p. 298.

Response to Metacholine in Rheumatoid Arthritis. G. A. Perera and C. M. Plotz.—p. 307.

Absence of Intrinsic Factor from Intestinal Juice of Patients Following Total Gastrectomy. M. Paulson, C. L. Conley and E. S. Gladsden. —p. 310.

Periarteritis Nodosa Simulating Eosinophilic Leukemia. Case Report. C. Blackburn.—p. 313.

Tissue Culture Techniques in Study of Animal Viruses. F. C. Robbins and J. F. Enders.—p. 316.

Epidemic Diarrhea of Newborn. J. E. Gordon and A. D. Rubinstein. —p. 339.

Sickle Cell Anemia in the White Race.—Guyton and Heinle report sickle cell anemia in a white Sicilian girl. The sickling trait was present in five of nine available members of her family. Several theories of the genetics of sickle cell anemia had been advanced, but none of these previously widely accepted theories fully explained the genetics in all reported cases. It is certain from individual and family study in reported cases that transmission as a simple mendelian dominant is an impossible explanation in many instances. The homozygous-heterozygous theory suggests that there is a gene in Negro populations which when heterozygous results in sicklemia and when homozygous results in sickle cell anemia, a situation analogous to that which exists in familial erythroblastic (Cooley's) anemia. This theory is probably correct, but failure of one or both parents of a sickle cell anemia patient to show sickling may be the result of incomplete penetrance of the trait-producing gene.

Leukemia in Radiologists.—According to March, the incidence of leukemia in United States physicians who are not radiologists for the five year period 1944-1948, inclusive, is 113 in 15,637 (0.72 per cent). The incidence of leukemia in radiologists during the same period is 6 in 124 (4.84 per cent). These percentages approximate those reported for the preceding 15 year period, 0.44 and 4.57 per cent, respectively. The combined figures for physicians for the two decades 1929 to 1948, inclusive, are as follows: 65,922 nonradiologists died, 334 of whom died of leukemia. During this same 20 year period, 299 radiologists died, 14 of whom had leukemia. The over-all incidence for nonradiologists is 0.51 per cent and for radiologists 4.68 per cent. It is thus seen that the incidence of leukemia in radiologists is more than nine times as great as in nonradiologists. This difference has statistical significance. It is suggested that the increased incidence of leukemia in physicians as a whole (compared with the adult male white population) might be due to the same factor of exposure to ionizing radiation.

American Journal of Pathology, Ann Arbor, Mich.

26:755-964 (Sept.) 1950

Developmental Stenosis of Aqueduct of Sylvius. R. S. Beckett, M. G. Netsky and H. M. Zimmerman.—p. 755.

Necrotizing Pulmonary Arteritis Occurring with Congenital Heart Disease (Eisenmenger Complex): Report of Case with Necropsy. J. W. Old and W. O. Russell.—p. 789.

Histogenesis of Papillary Cystadenoma Lymphomatosum (Warthin's Tumor) of Parotid Salivary Gland. A. S. Thompson and H. C. Bryant Jr.—p. 807.

Bilateral Mammary Arteritis: Report of Case. T. R. Waugh.—p. 851.

*Histologic Study of Muscles and Nerves in Poliomyelitis. J. Denst and K. T. Neubuerger.—p. 863.

Transfusional Siderosis. J. P. Wyatt, H. K. Mighton and V. Moragues. —p. 883.

Renal Siderosis in Hemoglobinuric Nephropathy. W. M. O'Donnell. —p. 899.

Nuclear Structure in Mammary Carcinoma. M. M. Black and F. D. Speer.—p. 913.

Effect of Sodium Sulfadiazine on Renal Tubule (Nephron) of Albino Rat. J. G. Brunson and J. G. Edwards.—p. 923.

Observations on Mitotic Reaction Induced in Liver of Rats by Thiourea. M. Rachmilewitz, A. Rosin and L. Doljanski.—p. 937.

Importance of Methionine and Choline in Arrest of Dietary Cirrhosis of Liver in Rat. E. R. Jaffé, R. W. Wissler and E. P. Benditt.—p. 951.

Muscles and Nerves in Poliomyelitis.—Denst and Neuberger obtained muscles and nerves at autopsy from 12 patients with poliomyelitis. Five deaths occurred during the acute stage, from the third to seventh day after the onset of clinical symptoms. Three patients died from 16 to 60 days after the onset. Four patients who were chronically ill survived from 14 months to three years after the initial paralysis. Samples of the following muscles were taken: temporal, sternocleidomastoid, pectoralis major, deltoid, biceps brachii, intercostals, diaphragm, rectus abdominis, psoas, quadriceps femoris, adductor magnus and gastrocnemius. The nerves that were studied included the phrenic, intercostals, the three cords of the brachial plexus, femoral and sciatic. These muscles and nerves presented a characteristic histological picture independent of their location. Two additional cases of bulbar poliomyelitis, with a duration of two and seven days, respectively, were examined. The muscular changes consisted of early fatty metamorphosis, followed by varying degrees of degeneration, atrophy and late fibrosis. Plasmodial formations of sarcolemmal nuclei in connection with disintegration of muscle fibers were seen frequently. Hypertrophic fibers were found in late cases. Proof of true regeneration was lacking. The histological picture resembled as a rule, that of the neurogenic forms of muscular atrophy but occasionally was reminiscent of that of progressive muscular dystrophy. The nerves showed early stripe-like demyelination and relatively minor change in the axis cylinders. The lesions in the nerves appeared less severe and less extensive than those in the muscles. The pathological process appeared to be different from wallerian degeneration. The possibility of direct action of the virus on muscles and nerves must be considered.

American Journal of Psychiatry, New York

107:161-240 (Sept.) 1950. Partial Index

Why State Hospital Superintendents Fail C T. Perkins —p 170
The Clinical Director Looks at the Hospital Superintendent A. M. Duval —p 173.
Cerebral Palsy: Medical Considerations and Classifications T. Fay. —p 180.
Clinical Report on Use of Dimethyl Ether of *d*-Tubocurarine Iodide in Electroshock Therapy. G A Ulett, R M. Counts and A H. Chapman —p 184
Institutional Program for Committed Sex Deviants B A. Cruvant, M. Meltzer and F. J. Tartaglino —p 190
Group Therapy in Sexual Maladjustment. A. Stone and L Levine. —p 195.
Strategic Conditions in Psychotherapy of Persons with Schizophrenia B. Betz —p 203
Complications of Acute Catatonic Excitement. Report of 2 Cases M. J. Aronson and S. V. Thompson —p 216
Follow-Up Study of Motor Withdrawal Reaction to Heat Discomfort in Patients Before and After Frontal Lobotomy. W. P. Chapman, A. S. Rose and H. C Solomon —p. 221.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

64:375-558 (Sept) 1950

*Mediastinal Emphysema. J. A Evans and T R Smalldon —p. 375
Encephalotrigeminal Angiomatosis (Sturge Weber Syndrome) with Particular Reference to Roentgenological Aspects Before and After Neuro surgery. J. R. Green, J. Foster and D L Berens —p 391
Roentgenologic Aspects of Head Trauma R J Gross —p. 399.
*Aplasia of Lung with Angiocardiographic Demonstration of Anomalous Pulmonary Circulation M D. Ingram Jr, G. W. Hudson and T. J. Davis —p. 409
Aneurysm of Pulmonary Artery: Report of Case W. J. Clifford, W. F. MacGillivray and R H. Goodale —p 414
Report of Case of Long Standing Renal Insufficiency with Extensive Metastatic Calcifications (Renal Osteitis Fibrosa Cystica). R. T. Levin and P. D. Genovese —p. 423.
Use of Preliminary Roentgenogram of Abdomen in Diagnosis of Congenital Obstruction of Intestine J. H Kneidel —p 430.
Summary of 49 Radiologists' Opinions on Skeletal Age Limits of Apparently Normal Six Year Old Children R W House —p 442.
Response of Carcinoma of Cervix Uteri to Fractionated Radium and Roentgen Therapy Given Concurrently H B Hunt.—p 446
Calcified Metastatic Deposits in Peritoneal Cavity, Liver and Right Lung Field from Papillary Cyst Adenocarcinoma of Ovary. L. Nathanson —p 467.
Neurofibrosarcoma of Neck: Report of Case with 10 Year Survival After Roentgen Therapy. H Marks —p 470
Large Hydatid Cyst of Liver: Case Report C W Perkins —p 473.
Calibrated Roentgen Ray Film Badge Dosimeter E Tochilin, R H. Davis and J. Clifford —p 475.
Dosimetry of Ionizing Particles. G. Failla and H H Rossi —p 489.

Mediastinal Emphysema.—Evans and Smalldon report the occurrence of mediastinal emphysema in 50 patients. Pulmonary interstitial emphysema followed a prolonged and difficult combined abdominoperineal resection in two patients Mediastinal emphysema occurred as a complication during an asthmatic episode in four patients. The creation of a pressure gradient between alveolus and vessel sheath as the result of atelectasis of a portion of lung produced mediastinal emphysema in one patient. Ten cases of mediastinal emphysema occurred in patients in whom an obstruction to the airway, which necessitated tracheotomy, was the precipitating factor. Mediastinal emphysema developed after diagnostic puncture of the external jugular vein in two patients There were six cases of mediastinal emphysema in full term newborn babies, with four deaths. Spontaneous mediastinal emphysema arose without apparent cause in three presumably healthy persons in whom no underlying pathological condition was subsequently demonstrated. The symptoms and signs of mediastinal emphysema are the result of "airblock." Pain may be mild or severe and may closely simulate coronary disease. Dyspnea and cyanosis are the result of increased mediastinal tension. Emphasis is placed on the importance of perialveolar and perivascular extension, as demonstrated by Macklin and Macklin, in evaluating dyspnea and cyanosis in cases of acute pulmonary infection, in asthmatics, in the newborn and in postoperative cases where trauma to pleura or extension of air from operative site to mediastinum seems unlikely. Early recognition of the real nature of the condition is imperative if prompt corrective measures are to be instituted. Posteroanterior roentgenograms may demonstrate one or both mediastinal pleural reflections or may reveal a globular radiolucency superimposed on the cardiac shadow. The lateral projection is the most revealing in outlining mediastinal collections of air in the majority of cases. Roentgen examination of the chest before tracheotomy is valuable for ruling out mediastinal emphysema as the cause of extreme dyspnea and cyanosis. Early roentgen diagnosis is important to prevent the development of so-called "malignant" pneumomediastinum, which may be fatal.

Aplasia of the Lung.—Ingram and co-workers report two cases of aplasia of the lung in which diagnoses were made during life in a girl aged 10 and in a male infant aged 14 months This brings to 18 cases the total number in which diagnoses have been made during life. The observations in the authors' first patient were further corroborated by angiocardiographic demonstration of a single pulmonary artery. This is believed to be the first time that such a study has been undertaken. The second patient had congenital hemivertebra of the thoracic portion of the spine, which occurrence had been previously reported. Aplasia of the lung is usually asymptomatic. It occurs more frequently in males than in females, in a ratio of three to two. It is seen three times as often on the left side as on the right. Diagnoses in these cases are usually the result of an accidental observation during physical examination or roentgenographic study in cases of extrapulmonary disease.

American Practitioner & Digest of Treat., Philadelphia

1:785-854 (Aug.) 1950

Use of Nitrogen Mustard in Malignant Disease. W. L Cook, W. J. Seiferth and G. J. Kastlin —p 785
Use of Quinidine in Treatment of Cardiac Arrhythmias R. France. —p 790
Metastatic Brain Abscess T. D. Cohn, M. Krinsky and H Zarowitz. —p 792
*The Depressed Patient Management with the Aid of a New Medication. H. V. Grahn —p. 795
The Adrenal Cortex. Review of Its Normal and Pathologic Physiology. A E Hussar.—p 798
Treatment of Hodgkin's Disease. C. M. Huguley.—p 807.
Local Medication for Relief of Perineal Pain After Delivery or Surgery. A P. Hudgins —p 810
Case of Enuresis H. H. W Miles and S Cobb —p 812.
Method for Fetal Electrocardiography. C. W. Pfister and S G. Plice. —p 816
Modern Aids to Cancer Diagrosis for the General Practitioner. I. Pilot and B M Chapman —p 820.
Psychiatric Therapy in Cardiovascular Disease. H. H. Morris and L. H. Smith —p 823
Differentiation of Angina Pectoris, Chronic Coronary Insufficiency and Myocardial Infarction J L Switzer.—p 828
Veratrum Viride in Treatment of Hypertension H. L Holley and I. A. Koffler.—p 840.
Evaluation of Etiologic Factors in Dermatosis A. Sterling.—p. 845.
Complications of Anal Fissure. T. Wilensky.—p 849.

Management of the Depressed Patient.—Grahn points out that this is an age of unrest and that a large percentage of persons seeking medical aid are weighed down by vague depressions and anxieties. When a patient has, in addition, some actual physical illness, this uneasy, despondent attitude can seriously impede treatment and recovery. When no physical illness is present, the attitude is still a danger signal, a warning of a possibly much graver psychological upset in the future. The family physician, because of his familiarity with his patient's problems and background, has a good opportunity to help such persons. The ideal treatment would be to discover the causes of the patient's emotional turmoil and remove them, but since this is usually impossible, the author used medication. He treated 85 patients who had symptoms of depression or anxiety with a preparation combining *d*-amphetamine and amylethyl barbituric acid This combination has a tranquilizing effect that seems to neutralize extremes of mood, giving the patient a more normal outlook and behavior. Satisfactory results were secured in almost every case in which the symptoms were within "neurotic" limits; in active psychoses, the drug had little or no effect. The preparation is best used as a temporary measure, to alleviate depression or anxiety sufficiently for the patient to make an effort toward solving his problems or facing them in some more healthy manner. Although no drug can substitute for psychiatric treatment when that is indicated, the preparation described is extremely useful in relieving the relatively mild emotional symptoms seen constantly in general medical practice.

Annals of Internal Medicine, Philadelphia

33:275-532 (Aug.) 1950

Global Strategy in Preventive Medicine. K. F. Meyer.—p. 275.
Evolution and Treatment of Late Disease of Liver. C. M. Jones.—p. 292.
Familial Occurrence of Multiple Sclerosis and Its Implications. R. P. Mackay.—p. 298.
Problems Presented by Pulmonary Tuberculosis in Patients over 50. E. L. Leech.—p. 321.
Common Cold and Its Implications. W. J. Kerr.—p. 333.
Incidence of Hypertension in Puerto Rico. R. M. Suárez.—p. 346.
Effect of Dicumarol on Erythrocyte Sedimentation Rate. R. H. Wier, J. C. Eagan and S. A. Wolfson.—p. 354.
*Chronic Typhoid Carrier. III. Therapy with Antagonistic Bacillus, Antibiotics and Sulfonamides. J. A. Vaichulis, A. Littman, A. C. Ivy, G. Zubowicz and R. Kaplan.—p. 361.
Influenza A Prime: Clinical Study of Epidemic Caused by New Strain of Virus. E. D. Kilbourne and J. P. Loge.—p. 371.
*Outbreak of Syringe-Transmitted Hepatitis with Jaundice in Hospitalized Diabetic Patients. P. M. Sherwood.—p. 380.
*Effect of Streptomycin on Tuberculous Meningitis. H. D. Brainerd and H. R. Eagle.—p. 387.
Hemolytic Crisis in Hereditary Spherocytosis: Study of a Family of Five with Concurrent Crisis. J. G. Li, I. G. Voth and E. E. Osgood. —p. 411.
Hypersensitivity to Pathogenic and Non-Pathogenic Fungi. E. L. Keeney. —p. 418.
Observations from 40 Years of Medical Teaching. J. E. Paullin.—p. 431.

Treatment of Chronic Typhoid Carriers.—*Vichulis and his associates report the results of therapy in which suspensions of bacteria that produce an antibiotic against Salmonella typhi were fed to 25 chronic carriers. In addition, 62 chronic carriers were treated with penicillin, carinamide, sulfonamides and tetraiodophenolphthalein or alcohol. Smaller groups were treated with glucosulfone sodium (promin®) streptomycin, aureomycin, chloramphenicol, terramycin and two new chemotherapeutic agents. Of the 25 patients treated with aqueous suspensions of a typhoid-inhibiting, gram-positive, spore-forming bacillus resembling Bacillus subtilis, 19 were cured. All the six patients tested in whom this treatment failed were biliary carriers. Synergistic therapy, consisting of massive doses of penicillin in combination with carinamide, a mixture of three sulfonamides and tetraiodophenolphthalein, was effective in eight of 42 patients. A solution of penicillin, carinamide and sulfonamides in 5 per cent ethyl alcohol solution was given intravenously in conjunction with intramuscular and oral therapy to 17 patients. Failures resulted in 10 patients receiving less than five liters intravenously. Cure resulted in three, probable cure in another three and failure in one of seven patients receiving larger amounts. Treatment with glucosulfone sodium, streptomycin, aureomycin, chloramphenicol, terramycin and two chemotherapeutic agents was not too successful. Response to therapy was not correlated with age, sex, duration of the carrier state or occurrence of previous clinical typhoid fever. Bile cultures were of great importance in determining the likelihood of success with bacillus or synergistic therapy. When bile cultures are negative, bacillus therapy is indicated; when positive, synergistic drug therapy should be used. The authors also concluded that gallbladder visualization is a favorable prognostic observation with regard to medical therapy.

Syringe-Transmitted Jaundice Hepatitis.—Sherwood reports on syringe-transmitted hepatitis with jaundice in four diabetic patients. The icterogenic agent was transmitted by the multiple dose per syringe technic of administering insulin. The incubation period ranged from a minimum of 64 days to a maximum of 106 and is compatible with that of homologous serum jaundice. The course of the acute hepatitis with jaundice in these four patients was generally uneventful. There were no complications or deaths, and the diabetes was not difficult to control. All four recovered within a period of 13 to 46 days. The author concludes that the use of a fresh, sterile syringe and needle for any injection or blood collection will reduce the dissemination of infected serum from one patient to another. Until this is possible, sterilization of equipment by dry heat (160 C.) for a minimum of one hour is essential.

Streptomycin in Tuberculous Meningitis.—Brainerd and Eagle studied the effect of streptomycin on 27 patients with tuberculous meningitis. Both intrathecal and intramuscular routes of administration were used. The daily dose of streptomycin given by the intramuscular route varied from 12.9 to 130 mg. per kilogram of body weight, and the intrathecal dose from 0.4 to 9.3 mg. per kilogram. Toxic effects from the drug were frequent, although severe intoxication was uncommon. Nine patients died during the first four weeks of treatment without evidence of improvement; eight showed initial favorable response but later relapsed and died while still receiving treatment. Two patients showed initial favorable response but had slight persistent evidence of infection after completion of the five month therapeutic period; one patient was free of all evidence of central nervous system infection following the completion of five months' treatment, but meningitis recurred 100 days later; two were completely free of all evidence of meningeal infection at the completion of five months' treatment. These patients are completely well 16 and 17 months after the end of the therapeutic period. Five patients are still under observation. The age and sex of the patients influenced the outcome. The average age of the improved patients was 8.7 years, with a range of 9 months to 42 years. The average age of the unimproved group was 31.2 years, with a range of 8 months to 58 years. Eleven of 13 females responded favorably, whereas only seven of 14 males were improved. There was no correlation between the therapeutic result and the number of cells in the cerebrospinal fluid or the concentration of cerebrospinal fluid glucose, chloride or protein. The duration of the disease before treatment had no effect on the outcome. Most patients responding favorably to treatment received more than 60 mg. per kilogram daily of streptomycin intramuscularly and over 2.0 mg. per kilogram daily intrathecally. Toxic reactions to streptomycin are common with high dosage but are a justifiable risk. The authors emphasize the importance of prolonged follow-up of treated patients and conclude that the prognosis of tuberculous meningitis is still grave.

Archives of Neurology and Psychiatry, Chicago

64:313-490 (Sept.) 1950

Role of Sympathetic and Parasympathetic Systems in Reflex Dilatation of Pupil. O. Lowenstein and I. E. Loewenfeld.—p. 313.
Mutual Role of Sympathetic and Parasympathetic in Shaping of Pupillary Reflex to Light: Pupillographic Studies. O. Lowenstein and I. E. Loewenfeld.—p. 341.
Some Data Concerning Growth and Development of Cerebral Cortex in Man: II. Postnatal Growth Changes in Cortical Surface Area. O. A. Turner.—p. 378.
Psychic Function and Electroencephalogram. M. Ostow.—p. 385.
Myelomalacia Secondary to Dissecting Aneurysm of Aorta. G. A. Schwarz, W. K. Shorey and N. S. Anderson.—p. 401.
Manic Psychosis in Case of Parasagittal Meningioma. W. Oppler. —p. 417.
Pleocytosis and Meningeal Signs in Uremia: Report on Sixty-Two Cases. M. J. Madonick, K. Berke and I. Schiffer.—p. 431.
The Psychiatrist in the General Hospital. E. J. Alexander.—p. 437.
Electroencephalographic Studies of Encephalopathies: I. Report of Nonfatal Case of Arsenical "Hemorrhagic Encephalopathy" with Serial EEG Studies. E. Roseman.—p. 448.

Archives of Ophthalmology, Chicago

44:357-498 (Sept.) 1950

Comparison of Refraction of Strabismic Eyes with That of Nonstrabismic Eyes from Birth to Twenty-Fifth Year. E. V. L. Brown. —p. 357.
Additional Experiences with Tetraethyl Pyrophosphate in Treatment of Glaucoma. W. M. Grant.—p. 362.
Distance Discrimination: VII. Influence of Initial Position of Rods in Howard-Dolman Test. B. I. Wilner, F. W. Weymouth and M. J. Hirsch.—p. 365.
Studies on Ocular Lens: II. Synthesis of Glutathione in Normal and Cataractous Rabbit Lens. E. V. Kinsey and F. C. Merriam.—p. 370.
Malignant Melanoma of Uveal Tract: Report of Case with Death 30 Years After Enucleation. W. E. B. Hall.—p. 381.
Increased Accuracy in Squint Surgery: Report of New Instrument. P. Tower.—p. 395.
Experimental Investigation of Paracentesis in the Treatment of Ocular Ammonia Burns. W. M. Grant.—p. 399.
Use of Methapyrilene (Thenylpyramine) Hydrochloride in Ophthalmology. S. D. McPherson.—p. 405.
Surgical Treatment of Tumors of the Optic Nerve: Report of Case. P. C. Bucy, J. R. Russell and F. M. Whitsell.—p. 411.
Vertical Heterotopia of Macula. I. J. Cohen and H. K. Weisberg. —p. 419.
Cilium in Anterior Chamber: Report of Case. J. W. Smith.—p. 424.
The Orbit: Review of Literature. F. B. Fralick.—p. 437.

Archives of Pathology, Chicago

50:259-394 (Sept.) 1950

The Testis: I. The Normal Testis. R. C. Sniffen.—p. 259.
Id.: II. Abnormalities of Spermatogenesis; Atresia of Excretory Ducts. R. C. Sniffen, R. P. Howard and F. A. Simmons.—p. 285.
*Sclerosing Lipogranuloma. H. F. Smetana and W. Bernhard.—p. 296.
Accuracy of Sampling by Needle Biopsy in Diffuse Liver Disease. S. S. Waldstein and P. B. Szanto.—p. 326.
Localization of Myocardial Infarcts with Respect to Muscle Bundles of Heart. W. B. Wartman and J. C. Souders.—p. 329.
*Pancreatic Lesions Associated with Chronic Ulcerative Colitis. W. P. Ball, A. H. Baggenstoss and J. A. Bargen.—p. 347.
Effect of Adenine on Rats. J. O. Ely and M. H. Ross.—p. 359.
Primary Cardiovascular Amyloidosis: Its Clinical Manifestations, Pathology and Histogenesis. R. S. Jones and D. B. Frazier.—p. 366.
Effects of Vitamin E Deficiency and Cod Liver Oil on Myopathy in Mice. C. E. Tobin.—p. 385.

Sclerosing Lipogranuloma.—Smetana and Bernhard report 14 cases of subcutaneous sclerosing lipogranuloma characterized by tumorous swelling of subcutaneous fat in several locations. Nine men between the ages of 20 and 60 had lipogranulomatous lesions in the genital region. The duration from onset to operation varied from five weeks to eight years. The scrotum was involved in three instances, the penis in two, the scrotum and penis in two and the epididymis and the perineum in one case each. A history of physical trauma was recorded in three cases, and cutaneous lesions of an inflammatory nature were present in three others; there was no history of injury in the remaining three. Three men had lesions on the buttocks, one man had a lipogranuloma in the right arm and one in the orbit. The process persisted for a long time in most cases, and complete, spontaneous healing did not occur in any case, even after many years. Microscopic study of the lesions revealed definite disruption and alteration of the usual structure of the fat lobules of the subcutaneous adipose tissue. The normal fat cells were replaced by fat globules of varying size, sometimes smaller but often much larger than the original structure. Globules and masses of free fat became entrapped by the proliferating fixed tissue elements, forming connective tissue, which later matured into rather dense hyaline scar tissue. Sclerosing lipogranuloma is a reactive process that sometimes follows injury to subcutaneous fat tissue. The injury of the adipose tissue may be of varying character and probably sets off the reaction by interfering temporarily with the local blood supply and fat metabolism. Physical disruption and hemorrhage are not necessary to the development of this disease. The assumption that formation of fatty acids is essential in its genesis is probably erroneous. Spontaneous healing of lipogranuloma is extremely slow, since the only effective means of disposal of fats altered by injury are phagocytosis and transportation or the walling off and segregating of the affected from the unaffected area. Sclerosing lipogranuloma represents a specific reaction to an unspecific injury and follows a distinct course, which differs from that of the reaction following injury to other tissues. The only effective treatment known for sclerosing lipogranuloma is complete surgical removal of the involved tissues. "Traumatic" sclerosing lipogranuloma is related to, but may be distinguished from traumatic fat necrosis of the breast, relapsing nonsuppurative nodular panniculitis, adiponecrosis neonatorum, lipid pneumonia and pelvic lipogranuloma caused by iodized oils injected for uterosalpingography or other artificial lipogranulomas.

Pancreatic Lesions Associated with Colitis.—Ball and co-workers studied the pancreas in 86 consecutive cases of chronic ulcerative colitis in which necropsy was performed, and for comparison in an additional 86 cases in which necropsy was performed and chronic ulcerative colitis was not present. Interstitial pancreatitis was observed in 46 (53 per cent) of the 86 cases of active chronic ulcerative colitis. The interstitial pancreatitis was acute in two instances and chronic in 44 (severe in five, moderate in 17 and mild in 22). Only three instances of mild chronic interstitial pancreatitis were observed in the control group. In addition to the 46 case of interstitial pancreatitis, there were 11 cases in which definite pancreatic fibrosis and acinar atrophy were present. The pancreatic fibrosis probably represented the healed stage of chronic interstitial pancreatitis. Pancreatic acinar dilatation occurred in 46 cases (53 per cent). The incidence of these lesions was far in excess of those in the control group. The causative factors of these lesions could not be determined. The interstitial pancreatitis seen in the cases of colitis differed significantly from the clinicopathological entities of pancreatic necrosis and chronic relapsing pancreatitis. Fatty replacement of liver commonly accompanied pancreatic disease in the cases of colitis. There were no clinical signs of pancreatic disease in the course of ulcerative colitis, but future clinical and physiological research may elucidate the significance of these pathological observations.

Arkansas Medical Society Journal, Fort Smith

47:73-82 (Sept.) 1950

Catarrhal Otitis Media with Effusion. P. L. Mahoney and A. J. Brizzolara.—p. 73.
*Use of Physostigmine in Treatment of Black Widow Spider Bite. O. R. Holloway.—p. 75.

Neostigmine and Atropine for Bite of Black Widow Spider.—Holloway discusses two patients who stated that they had been bitten by a black widow spider. Both were treated two hours after the bite occurred, and both had symptoms indicative of such a bite. They were treated with phyatromine,® which is a combination of physostigmine salicylate and atropine sulfate. The first patient was given a deep intragluteal injection of 1.5 cc. of phyatromine® plus ¼ grain (15 mg.) of morphine sulfate. Ten minutes later he began to relax, and five minutes later he was completely relaxed. The second patient was given only 2 cc. of phyatromine.® Here again relaxation of the muscular spasm occurred in about 15 minutes. Both patients recovered completely.

Cincinnati Journal of Medicine

31:169-204 (June) 1950

Management of Acute Head Injuries. D. Echols, S. Braden, C. Pilcher and F. Mayfield.—p. 169.

Florida Medical Association Journal, Jacksonville

37:121-184 (Sept.) 1950

Cytologic Diagnosis of Malignant Disease. N. A. Murray.—p. 139.
Chronic Pyuria in Infants and Children. M. Campbell.—p. 142.
Prediabetic State and Its Clinical Importance. J. H. Barach.—p. 145.
Acute Renal Insufficiency: Review. M. E. Flipse and M. J. Flipse.—p. 149.

Journal of International College of Surgeons, Chicago

14:257-366 (Sept.) 1950

*Homografts of Aorta Preserved in Alcohol. R. Paolucci and E. Tosatti.—p. 257.
Congenital Obstructive Lesions of Urinary Tract. E. Burns.—p. 262.
*Esophagoduodenal Anastomosis in Selected Cases of Total Gastrectomy. L. T. Palumbo.—p. 267.
Pancreatic Fluid Accumulation Subsequent to Trauma: Report of Case. E. C. Wilford, C. H. Arnold, K. I. Ho and H. H. Shen.—p. 280.
Bilharziasis of Urinary Tract: Some Clinical Aspects. J. Bitschai.—p. 285.
Obstruction of Lower Portion of Urinary Tract in Infants and Children. M. F. Campbell.—p. 294.
New Endotracheal Tube: Preliminary Report. Z. Harris and J. A. Glassman.—p. 301.
Preoperative and Postoperative Nutrition for Surgical Patients with Carcinoma of Large Bowel. G. P. Giambalvo, H. D. Trimpi and H. E. Bacon.—p. 305.
Endometrioma of Sigmoid Producing Obstruction. H. E. Steadman.—p. 316.
Granulosa Cell Carcinoma of Ovary. T. M. Rogers.—p. 325.
Diaphragmatic Hernia with Eventration and Herniation of Spleen. L. S. Altman and B. Kogut.—p. 330.
Perforated Gastric and Duodenal Ulcer: Review of Cases. R. L. Schaeffer.—p. 333.

Homografts of Aorta.—Paolucci and Tosatti preserved pieces, 2 to 5 cm. in length, of abdominal aorta of dogs in pure alcohol at room temperature for five to 15 days. These segments were then transplanted into the abdominal aorta of five adult dogs between the renal and inferior mesenteric artery. The animals appeared in good condition fifteen days after the operation; they took nourishment and walked in an apparently normal manner. Roentgen examination was performed at intervals of one to nine months after the operation. There was no stenosis and no ectasia. Two dogs were killed seven and eight months after the operation. Union of the graft above and below the abdominal aorta was complete. The graft was covered by a connective tissue that made it adhere at one point to the surrounding tissues. The suture lines and the silk thread were clearly visible. There was no stenosis, thrombosis or bulging. The authors' method of preservation of homografts of aorta is simpler than that recently adopted by Gross and Peirce. Results obtained were satisfactory.

Esophagoduodenal Anastomosis.—Palumbo performed an esophagoduodenal anastomosis after a total gastrectomy in five men between the ages of 48 and 57. He prefers this anastomosis to esophagojejunostomy in certain selected cases in which the local pathological process and the proximity of a mobile duodenum are such that the cut end of the esophagus and the duodenum can be approximated without tension. The duodenum was mobilized by dissection in three of the cases of the second portion from its lateral peritoneal investment. This maneuver, with displacement of the duodenum and pancreas, did not compromise the blood supply or function of the structures. Death resulted from pulmonary edema in one patient on the sixth postoperative day. Necropsy showed definite and satisfactory healing at the site of the anastomosis. The postoperative course was complicated by a persistent draining sinus in two cases and by abscesses below and above the diaphragm in the two other cases. Barium studies showed the anastomosis to be intact and functioning without evidence of obstruction in all four cases. Esophagoduodenal anastomosis is simpler and easier to perform than esophagojejunostomy. It eliminates some of the steps required in the latter procedure, namely, closure of the duodenal stump and enteroanastomosis. Direct anastomosis of the esophagus with the duodenum appears to establish a more nearly normal anatomic and physiological continuity of the gastrointestinal tract.

Journal of Neurosurgery, Springfield, Ill.

7:383-466 (Sept.) 1950

New Absorbable Hemostatic Bone Wax: Preliminary Report. J. R. Geary and V. K. Frartz.—p. 383.

*Conservative Surgical Therapy of Brain Abscesses. L. A. Mount.—p. 385.

Precentral Motor Cortical Ablation in Experimental Epilepsy in Monkey. B. L. Pacella, M. A. Kennard, L. M. Kopeloff and others.—p. 390.

Atropine in Treatment of Closed Head Injury. A. Ward Jr.—p. 398.

Ventriculocisternostomy According to Torkildsen: Report of 22 Cases. L. Herlin.—p. 403.

Failure to Demonstrate Gliomas with Evans Blue: Precautions in Use of Intravital Dyes in Man. W. H. Sweet.—p. 412.

Paradoxical Improvement in Hemiplegia Following Cortical Excision. K. Welch and W. Penfield.—p. 414.

*Acute Degenerative Changes in Adenomas of Pituitary Body—with Special Reference to Pituitary Apoplexy. M. Brougham, A. P. Heusner and R. D. Adams.—p. 421.

Conservative Surgical Therapy in Brain Abscesses.—The conservative surgical method recommended by Mount for brain abscess consists of accurate localization of the abscess, with ventriculography if necessary. A trephine opening is made directly over the abscess; the dura is opened, and the exposed arachnoid and pia are cauterized, so as to seal the subarachnoid space and prevent meningitis. Then a needle is inserted for removal of pus for culture and smear. This is followed by insertion of a size 10 catheter with multiple openings at the end. The abscess cavity is carefully washed with penicillin until the return is clear and is then filled with penicillin. The catheter is sutured to the scalp and is brought out through the dressing in order to continue the irrigation and further instillation of the proper antibiotic as determined by the culture and smear of the pus. The abscess cavity is irrigated every six hours until the return is clear, and then penicillin is allowed to run into the cavity by gravity in order to completely fill it. Lumbar puncture is done if the antibiotic will not run in by gravity. The catheter is gradually withdrawn, 1 cm. every other day. This local treatment is combined with systemic antibiotic therapy administered either intramuscularly or orally. The author employed this method in 10 patients, two with cerebellar, one with subdural and the rest with cerebral abscesses. Recovery followed in eight patients. In 31 cases of brain abscess treated by other methods, the mortality rate was 45 per cent. The catheter method of treatment affords drainage of the abscess with a minimum of cerebral trauma, and it is therefore especially valuable when the abscess extends into important areas of the brain. If free exchange of fluid through the catheter cannot be obtained, the method is inadvisable.

Degenerative Changes in Pituitary Adenomas.—Brougham and his collaborators describe clinical and pathological observations on five patients with adenoma of the pituitary. The unique feature of these cases was a hemorrhage into the adenoma and/or extensive necrosis of the tumor, which was responsible for the sudden onset of a fairly uniform syndrome consisting of drowsiness, stupor or coma, headache and stiff neck, ocular palsies and sometimes amblyopia or hemiparesis. Some abnormality of the cerebrospinal fluid, usually the presence of blood or xanthochromia, sometimes only a slight pleocytosis or an elevated protein level, was invariably present. These acute retrogressive changes are believed to be related to the excessively rapid growth of some pituitary adenomas. The authors found only five verified cases in literature with similar symptomatology and pathological aspects but also two other cases in which the clinical aspects were highly suggestive of the same lesions. The authors stress the importance of a correct diagnosis. They list crises of adrenal insufficiency, a temporal lobe pressure cone and convulsive states as conditions that must be considered in the differential diagnosis. Although in some instances the apoplectic insult will prove swiftly fatal, supportive treatment is important in those patients who survive. One should watch for endocrinal deficiencies for which replacement therapy is possible. Some patients fail to rally, but others reach a plateau of partial improvement from which some of them may be rescued. Treatment should remain conservative as long as the clinical course is in the direction of recovery. Roentgen therapy is not advisable after pituitary apoplexy, because it might provoke additional acute degenerative changes. Few patients will have spontaneous improvement that is permanent. Extensive extravasation of blood at the infundibular region or a postinfarction swelling of the extrasellar portion of the adenoma would give rise, in most cases, either to paralytic effects on adjacent parts of the brain or to blockage of cerebrospinal fluid pathways and progressive internal hydrocephalus. Operation would then become necessary for relief of chronic headache, hemiparesis, impending stupor, papilledema or threatened optic atrophy. Surgical attack on an adenoma that has escaped from the confines of the sella is a formidable undertaking, but the results of intervention may be gratifying. Of three operations thus far reported as having been done for relief of apoplectic syndromes, two were highly successful.

Journal Pharmacology & Exper. Therap., Baltimore

100:1-118 (Sept.) 1950. **Partial Index**

Pain Relief with Hypnotic Doses of Barbiturates and Hypothesis. A. S. Keats and H. K. Beecher.—p. 1.

Pharmacologic Action of Basic Esters of p-Xenylacetic and p-Xenylglycolic Acid—New Antispasmodic Drugs. A. M. Lands, J. O. Hoppe, J. R. Lewis and E. Ananenko.—p. 19.

Anticonvulsant Action of 2,2-Diethyl-1,3-Propanediol (DEP) and Some of Its Homologues and Esters. F. M. Berger and B. J. Ludwig.—p. 27.

Cochlear Signs of Streptomycin Intoxication. J. E. Hawkins Jr.—p. 38.

Effect of Salicylate upon Pain Sensitivity. J. E. Birren, H. B. Schapiro and J. H. Miller.—p. 67.

Fate of Intrathecal Procaine and Spinal Fluid Level Required for Surgical Anesthesia. M. Helrich, E. M. Papper, B. B. Brodie and others. —p. 78.

Anticurare Action of Phenolic Quarternary Ammonium Salts. L. O. Randall.—p. 83.

Pharmacology of N,N-Dimethyl 2-Chloro-2-Phenylethylamine. F. C. Ferguson Jr. and W. C. Wescoe.—p. 100.

Inhibition of Kidney Succinic Dehydrogenase System by Mercurial Diuretics. C. A. Handley and P. S. Lavik.—p. 115.

Michigan State Medical Society Journal, Lansing

49:1041-1090 (Sept.) 1950

Raising Funds for Arthritis Research. H. T. Ewald.—p. 1041.

Arthritis Research in Michigan. J. J. Lightbody.—p. 1042.

Present Status of ACTH and Cortisone in Practical Management of Rheumatoid Arthritis. W. D. Robinson.—p. 1045.

Cortisone and ACTH: Their Present Relationship to Rheumatoid Arthritis. F. J. Sladen.—p. 1053.

ACTH and Colchicine for Clinical Treatment of Acute Gouty Arthritis. W. Q. Wolfson, H. D. Hunt, C. Cohn, W. D. Robinson and I. F. Duff. —p. 1058.

Study of Immediate Effects of ACTH on Histopathology of Felty's Syndrome. H. A. Freund.—p. 1065.

Treatment of Osteoarthritis with ACTH. M. Dale.—p. 1068.

Osteoarthritis and Body Mechanics. F. X. Krynicki.—p. 1070.

17-Ketosteroid Excretion in Rheumatoid Arthritis. H. A. Freund, D. H. Basinski and R. B. Scott.—p. 1076.

Hands in Arthritis. D. C. Ensign and J. W. Sigler.—p. 1078.

Procaine in Rheumatic Diseases. E. Lipkin.—p. 1081.

Hemagglutination Test for Rheumatoid Arthritis. H. A. Freund and C. S. Stulberg.—p. 1084.

Cortisone in Rheumatoid Arthritis. J. J. Lightbody, A. E. Price, W. S. Reveno and E. C. VonderHeide.—p. 1085.

Rupture of an Endometrial Cyst During Pregnancy. H. M. Nelson and T. S. Fandrich.—p. 1089.

New England Journal of Medicine, Boston

243:357-394 (Sept. 7) 1950

Rational Therapy for Secondary Amenorrhea. W. P. Given, R. W. Gause and R. G. Douglass.—p. 357.
Public Medical Care in Great Britain and the Scandinavian Countries: Basic Policies. F. Goldmann.—p. 362.
Massive Hematemesis Resulting from Rupture of a Gastric-Artery Aneurysm: Report of Three Cases. G. A. Donaldson and E. Hamlin. —p. 369.
*"Milk Factor" in Carcinoma of Human Breast: Analysis of 88 Cases. H. W. Horne Jr.—p. 373.
Milk Factor in the Transmission of Mammary Carcinoma. J. Berner. —p. 375.

The "Milk Factor" in Carcinoma of the Breast.—The purpose of this study by Horne was to explore the possibility of the vertical transfer through breast feeding of an agent that might be a factor in the development of human mammary cancer. Case histories of well over 1,000 women with known carcinoma of the breast were made available by several hospitals. From these cases were chosen 88 patients whose mothers were still living. As a control group, a similar selection was made of 86 patients who had had vaginal plastic operations and in whom no neoplastic process had been discovered from the history, physical examination or pathological examination. The average age of the two groups was the same. Among the patients with cancer, nine (10.2 per cent) had never received any human milk. Among the patients who had had vaginal plastic operations, seven (8.1 per cent) had never received any human breast milk. Among the maternal family histories of the patients with cancer, exclusive of the patients' neoplasms, 87 tumors, of which 20 were cancers, were reported. Four of these cancers were in mothers of patients under study; one was of the breast, two of the intestines and one of the skin. Among the maternal family histories of the patients who had had vaginal plastic operations, 35 tumors, of which 14 were cancers, were reported. Only one of these cancers was in the mother of a patient under study; a cancer of the skin. The authors conclude from this that a woman may develop cancer of the breast without ever having received human breast milk. Whether the daughters of women with mammary cancer are more likely to develop the same disease if they are nursed has not been investigated and from the study here reported may not be inferred.

Plastic and Reconstructive Surgery, Baltimore

6:179-254 (Sept.) 1950

Use of Iliac Bone in Repair of Facial and Cranial Defects. R. O. Dingman.—p. 179.
Carved Cancellous Bone Grafts in Rhinoplasty. J. Gerrie, G. E. Cloutier and F. M. Woolhouse.—p. 196.
*Use of Tubed Pedicle Transplant in Reconstruction of Surgical Defects in Head and Neck. D. Catlin.—p. 207.
Successful Primary Repair of Severed Parotid Duct. L. A. Bornstein and B. E. Simon.—p. 217.
Monocular Blindness as Complication of Treatment of Malar Fracture. S. Gordon and H. Macrae.—p. 228.
Skin Grafting: Technical Improvement. E. S. Lamont.—p. 233.
Sandwich Method for Immobilization of Skin Graft for Loss of Penile Skin. R. D. Rawson and S. Kirschbaum.—p. 234.
Importance of Physiognomy in Esthetic Rhinoplasty. A. Berndorfer. —p. 242.

Tubed Pedicle Transplant in Reconstructions on Head and Neck.—Catlin points out that radical surgery for cancer of the head and neck will often produce large through and through defects involving the oral cavity or pharynx. Reconstruction of such defects can be satisfactorily accomplished by the tubed pedicle transplant. The tubed pedicle is usually elevated in one stage on the anterior chest wall. The skin defect beneath the tube is closed by primary suture. Occasionally the skin of the abdomen is used to form a tube. Since the commonest complication of head and neck cancer is metastasis to cervical lymph nodes, the author is opposed to use of the skin of the neck for the elevation of a pedicle. The reconstruction must be performed in stages and usually requires several months. A small recurrence can often be controlled by further surgery before the defect has been completely closed. The tubed pedicle offers the most flexible and useful epithelial lined transplant for the closure of through-and-through defects, even in the presence of tissue damaged by previous radiation therapy. When the defect is large, two or more tubes can be employed. They may be migrated together to the defect as quickly as a single tube. Adjustments and revisions of a tubed pedicle may be made repeatedly until the desired result is obtained. The pedicle is not always as cosmetically attractive as other reconstructions, but freedom from cancer and reasonably good function must be considered of greater importance than a good cosmetic result. The author describes the surgical principles of reconstruction with the tubed pedicle in three representative cases. Photographs and drawings accompany the descriptions.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

74:659-902 (Aug.) 1950. Partial Index

Cortisone Acetate and Terramycin in Polyarthritis of Rats. W. C. Kuzell and E. A. Mankle.—p. 677.
Experimental Pulmonary Edema: IV. Pulmonary Edema Accompanying Trauma to Brain. E. M. MacKay.—p. 695.
Chemoprophylactic Effectiveness of Aureomycin and Terramycin in Murine Bartonellosis. M. F. Stanton, L. Laskowski and H. Pinkerton. —p. 705.
Chemotherapy of Leukemia: V. Effects of 2,4,6-Triethylenimino-S-Triazine and Related Compounds on Transplanted Mouse Leukemia. J. H. Burchenal, S. F. Johnston, M. A. Cremer and others.—p. 708.
Influence of Rice and Purified Diets upon Cardiac Behavior of Thiamine Deficient Rats. L. J. Pecora, L. L. Ashburn and J. M. Hundley. —p. 721.
Survival of Trichomonas Vaginalis in Vaginal Discharge. J. F. Kessel and C. F. Thompson.—p. 755.
Relation of Cortisone Pretreatment to Mobilization of Lipids to Liver by Pituitary Extracts. L. Levin and R. K. Farber.—p. 758.
Effect of Insulin Hypoglycemia on Eosinophiles and Lymphocytes of Psychotics. Shih Yuan Tsai, A. Bennett, L. G. May and R. L. Gregory.—p. 782.
Culture of Brown-Pearce Carcinoma in Embryonated Egg. A. M. Schechtman, M. J. Cohen and E. C. Berkowitz.—p. 784.
Use of Antipyrine in Measurement of Total Body Water in Animals. R. J. Soberman.—p. 789.
Growth Retardation of Lymphosarcoma Implants in Pyridoxine-Deficient Rats by Testosterone and Cortisone. H. C. Stoerk.—p. 798.
*Dual Antibody Response to Coxsackie and Poliomyelitis Viruses in Patients with Paralytic Poliomyelitis. J. L. Melnick and A. S. Kaplan. —p. 812.
Effect of 17-Hydroxy-11-Dehydrocorticosterone (Compound E) and of ACTH on Arthus Reaction and Antibody Formation in Rabbit. F. G. Germuth Jr. and B. Ottinger.—p. 815.
Development of Chloramphenicol-Resistant and Chloramphenicol-Dependent Variants of Strain of Klebsiella Pneumoniae. T. M. Gocke and M. Finland.—p. 824.
Hemorrhagic Skin Lesions Produced by Intradermal Meningococcus Toxin in Rabbits Following Treatment with ACTH or Cortisone. L. Thomas and W. J. Mogabgab.—p. 829.
Procarcinogenic Effect of Vitamin B_{12} on *p*-Dimethylaminoazobenzene-Fed Rats. P. L. Day, L. D. Payne and J. S. Dinning.—p. 854.
Passive Transfer of Atopic Hypersensitiveness in Man by Means of Leucocytes. M. Walzer and I. Glazer.—p. 872.
Adrenal Cortex and Lipid Metabolism: Effects of Cortisone and Adrenocorticotropin (ACTH) on Serum Lipids in Man. D. Adlersberg, L. E. Schaefer and R. Dritch.—p. 877.
*Therapeutic Effect of Aureomycin in Pernicious Anemia. H. Lichtman, V. Ginsberg and J. Watson.—p. 884.

Coxsackie and Poliomyelitis Viruses in Paralytic Poliomyelitis.—Melnick and Kaplan isolated both poliomyelitis virus and Coxsackie virus from the acute phase stools of paralytic patients during an epidemic of poliomyelitis. In two such cases, neutralizing antibody tests were made with acute and convalescent phase serum reacting with a suspension of virus obtained directly from acute phase stools. It was found that antibodies to Coxsackie and poliomyelitis viruses developed in both patients simultaneously. On the basis of the neutralization tests reported here and the finding of both viruses in the stools of 13 other patients in this epidemic, the authors believe that the failure to detect poliomyelitis virus in the stools of a paralytic patient excreting Coxsackie virus should be regarded as a technical difficulty and should not necessarily be regarded as an indication that Coxsackie virus caused the lesion resulting in paralysis. Until proved otherwise, the patient's paralytic manifestations should be considered to result from central nervous system infection with poliomyelitis virus. However, the finding of dual infections in poliomyelitis appears to occur too frequently to be regarded merely as coincidence. Is it possible that infection with poliomyelitis virus would have been a mild affair in these patients had not Coxsackie virus infection been superimposed? Consideration is being given to the possibility that Coxsackie virus infection may be one of the predisposing factors which may turn a nonparalytic into a paralytic case.

Aureomycin in Pernicious Anemia.—Lichtman and his associates gave aureomycin by mouth to four patients with Addisonian pernicious anemia in relapse and to one patient with nutritional macrocytic anemia. These patients showed a definite, although submaximal, hematological improvement. A fifth patient with Addisonian pernicious anemia was given aureomycin intravenously with no response. The mechanism of action of the aureomycin remains to be determined. Some possible explanations follow: 1. The sterilization of the gastrointestinal flora by aureomycin may remove a hemolytic toxin. 2. The lowering of the bacterial population in the gastrointestinal tract may increase the amount of dietary vitamin B_{12} available to the body (recent work has demonstrated that Escherichia coli has a decided affinity for vitamin B_{12} and can remove it from solution in vitro). 3. The lowering of the bacterial flora count by aureomycin may permit the growth of other micro-organisms, for example, yeasts, which in turn may produce pteroylglutamic acid or other hematopoietically active substances utilizable by the body.

Surgery, St. Louis

28:161-460 (Aug.) 1950. Partial Index

Resident Training and Specialization in Surgery. S. W. Moore.—p. 161.
*Quantitative Aspects of Hemorrhage. I. Rudman and J. D. Stewart. —p. 170.
Retardation of Wound Healing by Cortisone. E. L. Howes, C. M. Plotz, J. W. Blunt and C. Ragan.—p. 177.
**Sodium Deficiency in Surgical Patients and Failure of Urine Chloride as Guide to Parenteral Therapy.* H. T. Randall, D. V. Habif and J. S. Lockwood.—p. 182.
Experimental Tuberculosis: I. Effects of Anastomosis Between Systemic and Pulmonary Arteries on Tuberculosis in Monkeys. C. R. Hanlon, H. W. Scott Jr. and B. J. Olson.—p. 209.
Cardiotomy into Empty Left Ventricle. H. D. Sirak, E. H. Ellison and R. M. Zollinger.—p. 225.
Observations on Experimental Atriovenous Anastomoses, with Particular Reference to Congenital Anomalies of Venous Return to Heart, and to Cyanosis. F. Gerbode and H. Hultgren.—p. 235.
Thoracic Aortic Coarctation: Its Experimental Production in Dogs, with Special Reference to Technical Methods Capable of Inducing Significant Intraluminal Stenosis. H. W. Clatworthy Jr., Y. Sako, T. C. Chisholm and others.—p. 245.
Functional Study of Afferent Fibers in Peripheral Sympathetic Nerves. L. W. Freeman, H. B. Shumacker Jr. and L. R. Radigan.—p. 274.
*Some Physiologic Effects of Lumbodorsal Sympathectomy for Hypertension. F. A. Simeone and O. Ramirez.—p. 282.
Venous Adaptation Following Bilateral Radical Neck Dissection with Excision of Jugular Veins. J. A. Gius and D. H. Grier.—p. 305.
Improved Method of Venography for Preoperative Evaluation of Postphlebitic Extremity. R. S. Martin and R. S. McCleery.—p. 322.
Surgical Treatment of Intracranial Angiomatous Malformations. C. Pilcher, W. F. Meacham and C. A. Cobb.—p. 342.
Complications Following Subtotal Gastric Resections Performed Since June, 1944, for Peptic Ulcer in 132 Patients: Comparison with Complications Following Vagotomy in 138 Patients. C. K. Lyons and K. S. Grimson.—p. 350.
New Surgical Treatment for Hirschsprung's Disease. O. Swenson. —p. 371.
Principle of Complete Exclusion in Fistulas of Small Intestine. S. P. Harbison.—p. 384.
Sickle-Cell Anemia: Surgical Problem: II. Further Observations on Surgical Implications of Sickle-Cell Anemia. R. H. Patterson, H. Wilson and L. W. Diggs.—p. 393.
Neck Dissections in Cancer of Lower Lip: Five-Year Results in 179 Patients. J. Modlin.—p. 404.
Permanent Camouflage of Corneal Scars Using Insoluble Tattoo Pigments. K. L. Pickrel, J. T. Metzger, J. Wilde and others.—p. 413.
Pheochromocytoma: Use of Adrenergic Blocking Agents in Operative Management. A. D. Console, H. S. Dunbar and B. S. Ray.—p. 428.

Quantitative Aspects of Hemorrhage.—Rudman and Stewart believe that the clinical tests usually employed to evaluate the severity of bleeding in acute hemorrhagic anemia do not always provide a clear picture. They report studies on 58 of 100 patients with bleeding peptic ulcer who were operated on immediately to control the hemorrhage. The results of the studies illustrate the severe degree of anemia and the critical nature of the hemorrhage in these patients. The hematocrit reading does not fall until the plasma volume begins to rise, that is, until new plasma protein enters the circulation, carrying fluid with it. Coincident with the peak value of plasma volume, the hematocrit reaches its lowest point. Thus, if patients are studied before maximal hemodilution occurs, there is a discrepancy between the total red cell mass and the hematocrit value. The red blood cell count, hemoglobin determination and hematocrit reading are all measures of red blood cell concentration, rather than of total circulating red blood cell mass. The former values will vary with changes in plasma volume. Not until all red blood cells lost in bleeding are replaced by an equivalent volume of plasma, will the hematocrit value, red blood cell count or hemoglobin fall to levels indicative of the true seriousness of the anemia. These tests cannot be relied on in the hours immediately following severe hemorrhage. The extent of bleeding may be grossly underestimated. Prior to the stage of maximum plasma hemodilution there is only one reliable index of severity of anemia, and that depends on a measurement of the total circulating red blood cell mass rather than on any study of red cell concentration. Since average transfusions of 2,320 cc. of blood were necessary to produce the 40 per cent increase in red blood cell mass, it may be calculated that an additional 1,450 cc. would be required to bring about restoration of a normal red blood cell mass. This total of 3,770 cc. of blood is equivalent to 60 per cent of the normal blood volume and indicates the large quantities of blood needed for adequate replacement. Patients can survive large and rapid blood losses even in the presence of cardiopulmonary disease and old age. Rapid transfusion of large quantities of whole blood can be safely carried out in these cases.

Sodium Deficiency and Urine Chloride.—Randall and his associates report observations on acute sodium deficiency and evaluate urine electrolyte excretions, particularly urine chlorides, as a guide to parenteral sodium and chloride replacement therapy. Urine, Miller-Abbott tube drainage and other drainages were collected. Exact measurements were made, and irrigating fluids (as in Miller-Abbott tubes) were included in intake and irrigation returns included in output. Sodium deficiency states were observed in acute peritonitis, in hypertension and cardiac failure, in acute ileostomies and in patients with large fluid losses from the gastrointestinal tract with inadequate electrolyte replacement. Adequate replacement of sodium and chloride deficits is imperative. Postoperative sodium and chloride retention was also observed, with edema, hemoconcentration and oliguria appearing with excessive sodium administration. The importance of distinguishing between retention and sodium deficiency is emphasized. Ratios of urine sodium to chloride were analyzed in five groups of surgical patients. The correlation of urine sodium to chloride is high before operation in patients on standard diets and decreases significantly when these patients are given intravenous fluids preoperatively. It changes relatively little with operation. Patients who were given potassium intravenously had somewhat lower postoperative correlation than those who had not received potassium. In two groups of patients with peptic ulcers who had been subjected to partial gastrectomy, postoperative urine sodium to chloride correlation was high when there was no obstruction, but in obstructed peptic ulcers, despite normal plasma sodium, potassium, chloride and HCO_3 (blood bicarbonate) levels preoperatively, urine contained far more sodium than chloride preoperatively. The reverse was true postoperatively, and correlations were poor. Patients who were seriously ill after major surgical intervention showed poor correlation of urine sodium and chloride excretion. Estimation of sodium and chloride excretion and replacement by measurement of urine chlorides alone in major surgical cases is inadequate and may be dangerous. Quantitative determinations of individual ions in blood, urine and drainage are essential if the fluid and electrolyte balance is to be maintained.

Lumbodorsal Sympathectomy for Hypertension.—Simeone and Ramirez discuss responses to sympathectomy other than those of the blood pressure. Such responses are surprisingly few. There is an increased sensitivity to insulin occurring long after sympathectomy. The total blood and plasma volumes are slightly decreased long after lumbodorsal sympathectomy, but the changes are not large enough to warrant attributing to them the effects which sympathectomy exerts on the blood pressure. The ability of the kidneys to clear the blood of mannitol and sodium paraaminohippurate is nearly normal in patients with only moderately severe hypertension, but is severely impaired in patients with severe hypertension. A close correlation exists between the degree of histological change in the kidneys and their ability to excrete mannitol and sodium paraaminohippurate. Patients whose blood pressure was improved one year after sympathectomy had nearly normal renal clearances; those who were not improved by sympathectomy showed preoperative values which were nearly one-half the normal. The filtration fraction was elevated both in the patients whose blood pressure improved after sympathectomy and in those whose blood pressure was unchanged. Among the former, however, the filtration fraction was decreased by sympathectomy; among the latter, the filtration fraction remained unchanged or increased. The data presented suggest that, in hypertensive patients with pronounced impairment of the rate of glomerular filtration and renal plasma flow, lumbodorsal sympathectomy does not cause a lowering of the blood pressure. A high filtration fraction, per se, however, does not preclude a favorable result.

Tennessee State Medical Assn. Journal, Nashville

43:309-356 (Sept.) 1950

Pulmonary Vessels in Roentgenological Diagnosis. W. B. Seaman and H. M. Wilson.—p. 309.
Endocrinology in Early Pregnancy. G. A. Mitchell.—p. 315.
Liquid Therapeutic Diet. C. J. Speas.—p. 321.
Etiological Aspects of Enuresis. R. Townsend.—p. 328.

U. S. Armed Forces Med. Jour. Washington, D. C.

1:957-1094 (Sept.) 1950. **Partial Index**

*Cryptococcosis: Review of Literature and Report of Case with Initial Pulmonary Findings. H. E. Ratcliffe and W. R. Cook.—p. 957.
Tuberculin Testing of Midshipmen and Recruits of the Navy and Marine Corps. R. O. Canada and R. W. Babione.—p. 971.
*Motion Sickness. F. Harbert and M. Schiff.—p. 979.
Vagus Resection: Study of 19 Cases. L. L. Bean and M. P. Stonestreet.—p. 985.
Army Field Surgeon, Specialist. R. P. Williams.—p. 997.
Clinical Use of Antibiotics: II. Prophylaxis of Infections. P. H. Long.—p. 1001.
Relation of Nitrate Nitrogen Concentration in Well Water to Occurrence of Methemoglobinemia in Infants. K. F. Maxcy.—p. 1007.
Antibiotic Drugs in Venereal Disease Therapy. M. J. Scott.—p. 1017.
Early Detection of Carcinoma of Cervix Uteri. S. S. Sarkisian.—p. 1021.
Malacoplakia of Urinary Bladder: Report of Case. C. E. Boonstra and P. L. Bates.—p. 1029.
Circumcision in the Adult. J. A. Millspaugh.—p. 1035.
Treatment of Herpes Zoster with Protamide. W. C. Marsh.—p. 1045.
Current Trends in Medical Education. M. A. Casberg.—p. 1065.
Coordination of Administrative and Professional Effort in Army Hospitals. W. F. Bowers.—p. 1077.
About the Army Medical Service: Medical Corps Officer Classification. F. J. Fielding.—p. 1081.

Cryptococcosis.—According to Ratcliffe and Cook, cryptococcosis is a chronic or subacute infection that may involve any part of the body, but that has a special predilection for the brain and meninges. The authors found 127 cases of cryptococcosis in the literature, to which they add one of their own. Their patient, a man aged 30, was admitted to the hospital because of roentgenographic evidence of a pulmonary lesion. The only complaint was pain of one day's duration in the right lower portion of the chest that occurred one month before admission. The chest was resonant throughout. Auscultation revealed a few high-pitched, sibilant rales. Spinal fluid examination gave normal results, but india ink preparation of the sputum revealed numerous yeast cells with a clear halo, presumably Cryptococcus neoformans. Sputum cultures from the same specimen revealed budding cells with halo-like capsules, morphologically characteristic of C. neoformans. Intraperitoneal injection of washings from these cultures into white mice caused death within eight days of all animals that had received injections. C. neoformans was found in them at autopsy. The patient complained of a headache. Subsequently, spinal punctures showed increasing pressures and india ink preparations of the fluid yielded organisms morphologically characteristic of C. neoformans. The patient died one month later. Necropsy revealed that the lesions were largely confined to the lungs and the brain. Pulmonary lobectomy had at first been considered for this patient, because the roentgenogram of the chest and the finding of C. neoformans in the sputum were the only indications of cryptococcal infection. Sensitivity testing showed C. neoformans to be sensitive to polymyxin in vitro, but the infection did not respond to treatment with this drug. Penicillin, streptomycin, sulfadiazine and potassium iodide were used without success. The authors feel in cases of pulmonary involvement of localized nature, in the absence of systemic spread, the involved lobe of the lung should be surgically removed.

Motion Sickness.—Harbert and Schiff believe that motion sickness cannot be ascribed to a single organ. It is the result of a break in accommodation by the spinal and medullary centers from continual unusual stimuli arising in many organs. In the order of importance, the vestibular, proprioceptive, visual and the other senses are involved. Stimuli from various organs normally cause automatic adjustments of the body to changes in its relation to the force of gravity. These sensations are correlated and integrated in cerebellar, medullary and spinal centers. When these centers are repeatedly subjected to unusual stimuli, a point is reached where they cause more than the proper reflexes. A spilling over to other medullary and higher centers occurs and produces symptoms of motion sickness. Symptoms of motion sickness are influenced by psychic factors, such as memory, association and fear. In airsickness, especially, the unsatisfactory rationalization of fear is a great factor. Symptoms of seasickness vary. In the treatment, general hygienic measures a day or two before sailing with avoidance of last minute parties, bustle and nervous tension are advantageous. If one lies down with the eyes closed or reclines in a deck chair facing away from the sea, both visual and skeletal reaction to stimulation will be reduced. Good ventilation and absence of odors are helpful. Physical exertion tends to reduce the tendency to lethargy. Atropine, scopolamine (hyoscine) hydrobromide and hyoscyamine have been prescribed because they inhibit the vagus or parasympathetic nerves. The barbiturates, preferably one of the quick-acting ones such as secobarbital (seconal®) sodium or pentobarbital (nembutal®) are probably useful adjuncts in the early phases; besides alleviating apprehension and worry, they reduce the sensitivity of the medullary centers and so facilitate adjustment. Pentobarbital is excellent when the motion of the ship produces insomnia. Dimenhydrinate (dramamine) has proved highly satisfactory in the prophylaxis as well as in the treatment of motion sickness.

Virginia Medical Monthly, Richmond

77:445-512 (Sept.) 1950

*Lipoid Pneumonia Due to Use of Mineral Oil as Laxative. E. Baron.—p. 448.
Obstetrical Factors in Infant Mortality. E. S. Groseclose.—p. 451.
Tuberculosis Control Program in General Hospital. E. C. Harper and W. E. Roye.—p. 455.

Lipid Pneumonia Caused by Mineral Oil Laxative.—According to Baron, lipid pneumonia can be classified as a man-made disease. Oil in nose drops, in vitamins or in a mineral oil laxative can cause this condition. Cases of lipid pneumonia in young children are understandable in view of the fact that the administration of oily vitamin preparations is frequently associated with struggling and possible aspiration. Most fish oils and free fatty acids are the more irritating types for pulmonary tissues. Mineral oil is not assimilable; being a saturated hydrocarbon, it cannot be digested in the body and, consequently, remains in the lungs indefinitely, except for the small amounts which appear in the sputum. Anatomic defects in the mouth, palate, tongue, larynx or esophagus, neurological disturbances that interfere with swallowing, the use of forced feedings and the fact that mineral oil, being bland, does not initiate the cough reflex, are factors that predispose to the aspiration of oil. When mineral oil reaches the dependent portions of the lungs, it first remains free in the alveoli but is later picked up, in droplets, by the macrophages. Some of the mineral oil can be disposed of in the sputum, and a small amount reaches the lymph nodes, but the bulk remains indefinitely in the lung, where it causes the development of fibrous tissue. This renders the lesion detectable by roentgen ray. The lower lobes, particularly the right, are most likely to be involved. The abnormal lung is a fertile soil for repeated attacks of bronchopneumonia, which may be responsible for the death of the patient. The author presents histories of six patients in whom necropsy disclosed lipid pneumonia. All had received mineral oil as a laxative, but death had been caused by other conditions. Since oil cannot be removed from the lungs, prevention is the only treatment. Laxatives containing mineral oil should not be used, nor should oily nose drops be instilled in the respiratory tract.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

62:351-394 (Sept.) 1950

Reticulohistiocytoma ("Ganglioneuroma") of Skin. F. G. Zak.—p. 351.
Vitamin A in Case of Acquired Localized Keratosis Palmaris et Plantaris and One of Acquired Pachyonychia. A. D. Porter and H. Haber.—p. 355.
Lepra, Psoriasis, or the Willan-Plumbe Syndrome? B. Russell.—p. 358.
Ulcerative Tuberculides. E. E. Hammerschmidt and G. W. Korting.—p. 361.

British Medical Journal, London

2:639-690 (Sept. 16) 1950

Congenital Heart Disease: Review of Its Clinical Aspects in Light of Experience Gained by Means of Modern Techniques. P. Wood.—p. 639.
Diffuse Eosinophilic Arteritis. G. Lumb.—p. 645.
Observations on Symptomatology and Treatment of Cervical Erosion. J. R. W. Ross.—p. 647.
*Gastric Ulcer Occurring After Vagotomy. D. M. Morrissey.—p. 651.
Epidemic of Benign Dry Pleurisy. D. G. H. Sylvester.—p. 653.
Adrenal Insufficiency After Suramin Treatment of Pemphigus. L. J. Mahoney and H. J. Barrie.—p. 655.
Indications for Globin Insulin. D. W. Pugh.—p. 657.
Some Aspects of Schistosoma Mansoni Infection. D. Mustafa.—p. 658.

Gastric Ulcer After Vagotomy.—According to Morrissey, the literature records three instances of gastric ulceration developing after successful vagotomy for a duodenal ulcer. These three instances occurred in a total of 268 patients subjected to vagotomy. The complication appears to be rare but is important because of the malignant potentiality of gastric ulcers and because these ulcers are sometimes remarkably painless after vagotomy. The author reports two additional cases, which provide further evidence of the inefficacy of vagal section in interrupting the course of gastric ulceration. These two cases were reported from a series of 79 patients with duodenal ulcer who were treated by vagotomy alone. In both cases the gastric ulcer developed within six months of vagal section. Morrissey believes that vagotomy is unsuitable as a treatment of gastric ulceration and that it does not confer protection against the development of gastric ulceration.

Glasgow Medical Journal

31:255-278 (Aug.) 1950

*Irreducible Intussusception Due to Meckel's Diverticulum: Report of Case with Recovery in Infant of Eight Months Old. J. Aitken.—p. 255.
*Benign Spontaneous Pneumothorax: Study of 70 Cases. A. G. Melrose.—p. 263.

Intussusception Due to Meckel's Diverticulum.—Aitken reports an eight month old infant with an irreducible intussusception caused by a Meckel's diverticulum. Treatment consisted of resection of the involved segment of the bowel and side to side anastomosis. The child recovered. This treatment is probably the best for an irreducible enteric intussusception. Detailed examination of the symptoms and signs does not suggest any method of differentiation between this type of intussusception and the usual enterocolic type when the patient is an infant, although the previous history and duration of the symptoms may be helpful.

Benign Spontaneous Pneumothorax.—Melrose presents a study of 70 cases of benign spontaneous pneumothorax by the follow-up method, with particular reference to etiology and to the subsequent incidence of pulmonary tuberculosis and of recurrence. The 70 patients were admitted for treatment of benign spontaneous pneumothorax to the medical wards of two Glasgow hospitals in the ten year period 1939-1948. They were asked to report for clinical examination, interrogation and chest roentgenogram, and 58 responded. The remaining 12, who were unable or unwilling to come to the hospital, provided the desired information by letter, telephone or to a social worker. Of the 70 patients, 65 were males. Physical exertion is not considered an important factor in the causation. Twenty-three per cent of the cases were recurrent. Pulmonary tuberculosis developed in four patients. If the unduly high incidence of pulmonary tuberculosis in the Glasgow area is taken into consideration, it may be assumed that tuberculosis is no more likely to develop in a person with benign spontaneous pneumothorax than in the average person in the general community. Spontaneous pneumothorax was not associated with any special type of physique. There were no familial cases.

Journal of Laryngology and Otology, London

64:455-546 (Aug.) 1950

Morgagni-Stewart-Morel Syndrome and the Otologist. C. A. Hutchinson.—p. 455.
Speech Audiometry in Assessment of Deafness. E. D. D. Dickson and D. L. Chadwick.—p. 464.
*Perceptive Deafness Associated with Severe Neonatal Jaundice: Report of 16 Cases. N. Crabtree and J. Gerrard.—p. 482.
Residual Osteitis of Alveolus of Maxilla as Cause of Facial Pain. P. S. Meyrick and L. S. Manion.—p. 507.

Perceptive Deafness and Neonatal Jaundice.—Gerrard reported 22 patients with kernicterus due to Rh isoimmunization who were over three years of age; the oldest was 23 years of age. Crabtree subjected 18 of these patients to a thorough otological examination. The remaining four were too backward mentally to permit an audiometric examination. These four patients can hear, but the toneless speech of one of them suggests a perceptive deafness in the range of high frequencies. Two additional patients with kernicterus, unassociated with Rh incompatibility, were examined audiometrically and proved to have perceptive deafness. Among the aforementioned 18 patients, there were 14 with perceptive deafness, two being completely deaf. Thus, 16 of 24 patients with kernicterus had perceptive deafness. The authors point out that there are a large number of cases of perceptive deafness of obscure origin. When Carruthers focused attention on the relation between maternal rubella during the first three months of pregnancy and deafness of the child born subsequently, it was hoped that the number of these cases might be noticeably reduced. It has now been shown that some of these cases are associated with a severe neonatal jaundice; this jaundice is usually but not invariably due to Rh isoimmunization. This type of deafness differs pathologically from that associated with maternal rubella, for rubella prevents or hinders the normal development of the primitive cells forming the organ of Corti, whereas in deafness associated with kernicterus the organs of hearing develop normally but the cochlear nuclei are damaged. Crabtree and Gerrard stress that perceptive deafness, usually of high tone type, is common in kernicterus. The severity of the deafness bears no relation to the severity of the other disabilities. All patients with kernicterus should be examined by pure tone audiometry. Assessment of intelligence in cases of kernicterus should be made in the light of the otological findings, and the type of intelligence tests selected accordingly. A history of severe neonatal jaundice may be obtained in some cases of perceptive deafness of unknown cause dating from early childhood.

Lancet, London

2:353-368 (Sept. 2) 1950

*"Medical Sympathectomy" in Hypertension: Clinical Study of Methonium Compounds. R. Turner.—p. 353.
*Pentamethonium in Hypertension. S. Saville.—p. 358.

"Medical Sympathectomy" in Hypertension.—According to Turner, the hexamethonium and pentamethonium compounds block the transmission of nerve impulses through autonomic ganglions. The author reports on the effects of pentamethonium (or hexamethonium) iodide (or bromide) when given by intravenous injection to hypertensive patients, on the effects of intramuscular injections and on oral therapy. Several case histories are presented that illustrate some of the difficulties encountered in this form of treatment. The author concludes that the methonium drugs have as yet no place in the routine management of patients, though they may prove useful in the treatment of resistant symptoms related to hypertension. More information is needed about their precise action, and for the present it will be most profitable to study their effects in patients who might otherwise be treated by sympathectomy. There is no evidence as yet that continuous reduction of blood pressure by drugs which paralyze the autonomic ganglions will prove beneficial to hypertensive patients, and it may prove harmful to some. There is no reason to doubt that other more efficacious and perhaps more selective preparations will be made, and possibly a study of the methonium compounds will throw light on the etiology of essential hypertension.

Pentamethonium in Hypertension.—Saville says that his present practice is to test the initial response to pentamethonium salts by giving one or two doses of 50 mg. intramuscularly and then to start daily treatment by mouth. The oral dosage varies, but is usually 0.5 to 1.0 Gm. every four, six or eight hours. The first dose should be taken as early as possible in the day. No significant therapeutic difference between the bromide and the iodide salts was observed. The drug is most conveniently taken in the form of flavored aqueous solution. Results obtained with pentamethonium in five patients suggest that pentamethonium bromide may be useful in the treatment of at least some forms of hypertension. It relieved troublesome symptoms in all these cases and apparently arrested the progress of the disorder. The initial improvement obtained with pentamethonium was maintained in all but one of the five patients. The condition of this patient was so grave that symptomatic relief was the most that could be expected. Time alone will show whether pentamethonium can reverse a steadily progressive condition, but it is conceivable that early and assiduous treatment will improve the prognosis.

Medical Journal of Australia, Sydney

2:205-240 (Aug. 5) 1950. Partial Index

*Influence of Lead Absorption on the Ratio of Large to Small Lymphoid Cells. D. O. Shiels.—p. 205.
Psychiatry and Eugenics. C. R. D. Brothers.—p. 211.
Pneumonokoniosis in Queensland Foundries. D. Gordon.—p. 217.
Some Practical Aspects of Venereal Disease. N. D. G. Abbott.—p. 224.

Ratio of Large to Small Lymphoid Cells in Lead Poisoning.—Shiels cites a report by Ferguson and Ferguson, which revealed that in men exposed to lead there is an increase in the ratio of large lymphocytes plus monocytes to small lymphocytes. The Fergusons believed that the increase in the percentage of large mononuclear cells was more closely related to the clinical condition than was the stippled cell count, the blue line, the red cell count or the percentage of hemoglobin. Shiels was able to confirm the observations made by the Fergusons in an earlier investigtion. In a study of 400 employees of a new plant producing storage batteries, he again found confirmation of the report of the Fergusons. In cases of lead poisoning, the ratio of lymphoid cells falls again to within the range of the ratio for unexposed persons. If the ratio falls to less than 2, lead poisoning is imminent if not already present. Recovery from lead poisoning is accompanied by a rise in the ratio to above 2 in the early stages. In the later stages of recovery the ratio again falls to the range of ratios of unexposed persons. In the case of new workers, there is a direct correlation between the cell ratio and the urinary lead concentrations as exposure increases. The cell ratio is a valuable guide to the prevention and diagnosis of lead poisoning.

South African Medical Journal, Cape Town

24:681-704 (Aug. 19) 1950. Partial Index

Placental Implants in Ophthalmology. S. Etzine.—p. 681.
*Stevens-Johnson Syndrome: Report of Two Cases Treated with Aureomycin. L. J. A. Lowenthal, J. L. B. Marais and H. D. Ruskin.—p. 686.
Recurrent Non-Specific Urethritis Associated with Respiratory Catarrh, Stomatitis, Conjunctivitis and Erythematous Vesicular Eruption of Legs and Forearms. J. Helman.—p. 688.
The Myth of the Dropping Kidney. R. C. Begg.—p. 690.

Stevens-Johnson Syndrome.—According to Loewenthal and his associates, the condition which in the English literature is now generally called Stevens-Johnson syndrome has also been designated as erythema exudativum multiforme with pneumonia, ectodermosis erosiva pluriorificialis and dermatostomatitis. The cutaneous lesions probably represent an allergic reaction to a variety of substances, bacterial, fungal, viral or chemical. The condition behaves as a specific infective one, with involvement of the skin, eyes, mucous membranes and lungs. The disease may last 10 days to four weeks or more, and some survivors are left with permanent ocular damage. The authors present the histories of two patients with this disorder, a woman aged 53 and a 10 year old boy. In both patients the disorder responded within 48 hours to treatment with aureomycin, whereas sulfadiazine and penicillin therapy had failed. The favorable response to aureomycin therapy agrees with the observations reported by others, and the authors believe that aureomycin acts as a specific remedy in this disease.

Acta Chirurgica Scandinavica, Stockholm

99:479-578 (June 5) 1950. Partial Index

Epiphrenic Diverticula of Esophagus: Report of Case Operated on. K. Dohn and O. Jacoby.—p. 479.
Intestinal Distention in Peritonitis. H. Wahren.—p. 489.
Acute Necrosis of Pancreas: Analysis of Clinical Material. Y. Edlund.—p. 497.
Venous Pressure in Varicose Veins in Patients with Incompetent Communicating Veins: Study of Statics and Dynamics of Venous System of Lower Extremity Under Pathological Conditions. H. Sturup and I. C. Højensgård.—p. 518.
Cervicofacial Actinomycosis—Typical and Nontypical. M. Glahn.—p. 537.
*Cancer Cells in Prostatic Secretion. G. Jönsson and C.-M. Fajers.—p. 545.
Results of Myelographies with Water-Soluble Media. C.-E. Johanson.—p. 560.
*Use of Tibial Graft as Retrosternal Support in Funnel Chest Surgery. H. Wahren.—p. 568.

Cancer Cells in Prostatic Secretion.—Jönsson and Fajers report on 110 patients with various prostatic disorders admitted to the Lund Surgical Clinic. Study of prostatic secretion according to the method of Papanicolaou made a diagnosis of cancer possible in 16 of the 110 cases. In 11 others, cancer was suspected, and in five of these the diagnosis was later verified. Two cases, which on the basis of the cells in the secretion were first given diagnosis of hypertrophy, were subsequently established as cancer. Diagnosis was correct in nearly 90 per cent of the cancer cases in which adequate amounts of secretion could be obtained. The authors feel that search for cancer cells in the secretion has afforded such encouraging results that it should be included as a routine method in diagnostic measures in cancer of the prostate.

Tibial Graft as Retrosternal Support in Funnel Chest.—According to Wahren, the indications for surgical correction of a funnel chest are those of a disturbance of the cardiac function, the cosmetic considerations and the mental attitude of the patient with regard to the malformation. He describes the case of a girl, aged 10, with a funnel chest deformity since birth, in whom the depression of the chest had become more pronounced, so that during the last year she suffered from dyspnea. The lower part of the sternum was depressed to the depth of about 4.5 cm. Wahren describes a new type of operation that he used in this case. He employed a tibial graft, which was inserted under the elevated sternum to keep the latter in the desired position.

Ann. Medicinae Internae Fenniae, Helsinki

39:73-150 (No. 2) 1950. Partial Index

Motility of Stomach During Gastric Pain. P. Brummer and A. Bundul.—p. 73.
Acidity of Gastric Contents After Meals as Compared to Results of Gastric Analysis. P. Brummer and I. Ruikka.—p. 81.
*Blood Picture in Subacute Bacterial Endocarditis Treated with Penicillin. K. Dammert.—p. 87.
Incidence of Urinary Tract Infection in Women. P. I. Halonen and R. Halonen.—p. 106.
Gastric and Duodenal Ulcer: Cases Treated at Medical Out-Patient Department 1937-39 and 1946-49. A. Setälä and A. Telkkä.—p. 113.
Incidence of Diarrhea in Infants on Diet of Human Milk, Milk Powder and Commercial Milk: Investigations Performed in Helsinki, Tampere, Jyväskylä and Lappeenranta *in Late Summer of* 1949. A. Ylppö, N. Hallman, M. Donner and others.—p. 142.

Blood Picture in Bacterial Endocarditis.—According to Dammert, subacute bacterial endocarditis is a typical example of an infectious disease that causes anemia. Some investigators assume that infectious anemias are due to iron deficiency. Knisely found that an intravasal agglutination occurs in infections and that the blood cells in such agglutinations are dissolved by the phagocytes in the liver and the spleen to such an extent that anemia results. Of 54 patients with bacterial endocarditis reported by Dammert, 38 were treated with penicillin. About half the patients died in the hospital during the treatment. The cause of death was congestive heart failure, thromboembolism or relapse. A close connection could be established between the course of the endocarditis and the anemia. Penicillin therapy usually brings about an improvement in the blood picture, whereas other treatments usually impair it. A daily dose of 300,000 units of penicillin gave better results than a smaller amount. Congestive heart failure impedes recovery. It is difficult to assess the effect of penicillin in patients with this condition. Signs of continued infection remain. Knisely's theory may offer an explanation. Severe subacute bacterial endocarditis is accompanied by intravasal agglutination. Red blood cell aggregates appear in the vascular bed and impede the local blood stream, causing injury to the vascular walls, leakage of fluid, and extravasation of red blood corpuscles into the tissue. This so-called "sludge-factor" of the blood concurs with other factors, which also cause loss of fluid through the endothelium. In patients with edema, large aggregations of blood corpuscles, delayed blood flow, loss of plasma and hemoconcentration are observed. It may be assumed that the penicillin has prevented bacteremia but has not counteracted the sludge-factor, which is maintained by the heart failure. Thromboembolic processes are common. Hemorrhages and alimentary factors may also play a part in the causation of anemia.

Deutsche medizinische Wochenschrift, Stuttgart

75:1013-1060 (Aug. 11) 1950. **Partial Index**

Course of Boeck's Disease in Lung. H. Hartweg.—p. 1013.

Methods of Investigating Disturbances in Diencephalohypophysial System. G. Damm.—p. 1016.

*Blood Transfusion in Children's Clinic: Addition of an Arsenoxide to Prevent Transfusion Syphilis. J. Brock and G. Conradi.—p. 1021.

*Possibility of Preventing Transfusion Syphilis by Chemotherapy. R. Fussgänger.—p. 1024.

Thiosemicarbazone in Treatment of Tuberculous Empyema. H. Wagener. —p. 1031.

Arsenoxides to Prevent Transfusion Syphilis.—Brock and Conradi used fresh, citrated blood, to which an arsenoxide preparation had been added to prevent the transmission of syphilis, for transfusions in 661 infants and 278 children. The blood was usually given in divided transfusions, over two or three days. No undesirable secondary effects were observed. The clinical effect of the transfusion was not altered, and there was no significant difference in the resistance of the erythrocytes in three day old citrated blood, whether or not the arsenoxide preparation had been added.

Prevention of Transfusion Syphilis.—The increased use of blood transfusion and the greater incidence of syphilis have directed attention to the danger of transmitting syphilis in this way. According to Fussgänger, the literature contains records of more than 100 cases of transmission, and he assumes that many others have not been reported. The fact that it is difficult to demonstrate syphilis during the first six weeks after infection has taken place is largely responsible for the transmission of syphilis by transfusion. Efforts have been made to prevent this transmission by adding spirocheticidal substances to transfusion blood. Since experimentation with the syphilis spirochete proved difficult, the spirochete of recurrent fever was employed. It was found that these spirochetes remain viable and virulent for several weeks in stored blood. Certain arsenoxides kill the spirochetes in a short time, and the quantities required are so small that no harmful effects need be feared in the recipient of the blood. The clinical application of this procedure is being investigated.

Gazzetta Medica Italiana, Milan

109:77-96 (April) 1950. **Partial Index**

*Combined Streptomycin, Sulfadiazine and Penicillin in Therapy of Brucellosis. D. Anglesio.—p. 85.

Brucellosis.—Anglesio reports on two groups of 11 patients each, who were given streptomycin and sulfadiazine alone or combined with penicillin. Both treatments appeared to be of equal value provided treatment was begun within the three first weeks of the course of the disease. Combined treatment is indicated particularly in patients with cardiovascular disease or pulmonary tuberculosis in whom administration of brucella vaccine is contraindicated.

Maandschrift voor Kindergeneeskunde, Leyden

18:45-80 (No. 2) 1950. **Partial Index**

Difficulties and Possibilities in Diagnosis of Tuberculous Meningitis. W. van Zeben.—p. 45.

*Gangrene After Scarlet Fever. J. G. F. Bethe.—p. 55.

*Indications for Splenectomy in Children with Essential Thrombopenia. T. D. Stahlie.—p. 64.

Gangrene After Scarlet Fever.—Bethe cites a 5 year old girl in whom gangrene of both legs developed after an attack of scarlet fever. It was decided to amputate the left leg 8 cm. below the groin. Following the amputation, the general condition of the child improved rapidly and necrotic tissue sloughed off the right leg. The child could be discharged after five months with a temporary prosthesis. The author reviews the literature on the occurrence of gangrene of the extremities after scarlet fever.

Splenectomy in Essential Thrombopenia in Children.—Stahlie discusses the pathogenesis of essential thrombopenia in children and reviews the various treatments, pointing out that splenectomy is the only causal therapy. He shows on the basis of seven case histories that splenectomy is rarely indicated in children, as the disease shows a tendency to spontaneous cure even after long periods (more than two years). Splenectomy should not be done in cases of simple hypoplasia of the megakaryocytes.

Medicina Clinica, Barcelona

8:79-132 (Aug.) 1950. **Partial Index**

*Antabuse in Treatment of Chronic Alcoholism. A. Marti-Granell and J. M. Pedrosa.—p. 122.

Antabuse®.—Marti-Granell and Pedrosa report on tetraethylthiuram disulfide (antabuse®) therapy combined with psychotherapy in seven alcoholics. A daily dose of 0.75 or 0.25 Gm. of this drug was well tolerated by the patients for three to four months, during which time the desire to drink in the patients was not manifest or was controlled by the patient, who himself requested further administration of the drug. Four patients complained of asthenia, paresthesia and neuritic pain. These complaints disappeared after administration of thiamine in the course of psychotherapy. The authors direct attention to the fact that tetraethylthiuram disulfide is well tolerated but may be harmful. The drug should be given only by a physician. It should be sold only to physicians.

Münchener medizinische Wochenschrift, Munich

92:329-408 (June 10) 1950. **Partial Index**

Deficiency in Carotenoids: Its Relation to New Goiter Wave. H. Haubold. —p. 329.

Cutaneous Reactions Following Intracutaneous Injection of Male Sex Hormone: Differences in Pregnant Women Due to Sex of Fetus. H. Doetsch.—p. 337.

*Vitamin E and Blood Sugar. H. E. Levens and M. Rösgen.—p. 339.

*Constitutional Changes in Chronic Tuberculous Meningitis. H. Schönenberg.—p. 343.

Agglutination-Inhibition Test of Hirst in Diagnosis of Virus Influenza. M. Bock.—p. 365.

Vitamin E and Blood Sugar.—Levens and Rösgen cite earlier reports indicating a connection between vitamin E and sugar metabolism and point out that if this vitamin acts on the blood sugar regulating centers in the hypophysis or the diencephalon, then it should produce an increase in the blood sugar level. They studied the effect of alpha tocopherol in women who had been hospitalized for such disorders as hypertension, cholecystopathy, bronchitis, adnexitis, heart lesions and cervical polyps, but who had no disturbance of the carbohydrate metabolism. The fasting blood sugar curves of these women were ascertained before and after injection of isotonic sodium chloride solution. Then 60 mg. of alpha tocopherol was injected, and following this the blood sugar content was determined at half hour intervals. Tolerance tests were then made with dextrose, epinephrine and insulin. Either immediately or 24 hours before the tolerance test, 60 mg. of alpha tocopherol was given. In seven of 29 patients the fluctuations in the blood sugar were so slight after the injection of vitamin E that they differed little from the "empty" blood sugar curves (no injection or only isotonic sodium chloride solution). The blood sugar values in all the other women tested showed deviations averaging 40 per cent from the normal. All women finally showed a decrease, but in a few instances this was preceded by an increase. The authors ascribe this increase to counterregulatory influences. The changes after epinephrine and dextrose tolerance tests were similar. The blood sugar values were usually higher; the peak was reached faster, and the decrease was slower than without administration of the alpha tocopherol. Moreover these effects were usually more pronounced when the vitamin had been given immediately rather than 24 hours before the tolerance test. The insulin tolerance tests disclosed an inhibition of the blood sugar decreasing effect. The authors conclude that administration of the vitamin influences the blood sugar level by rendering it more unstable, with a tendency toward reduced values. Its point of attack has not been ascertained, and there were no indications of a direct influence on the diencephalohypophysial system. The authors believe that the level of the vitamin E content in the blood plays an important part in the peripheral phases of carbohydrate metabolism.

Constitutional Changes in Chronic Tuberculous Meningitis.—Schönenberg points out that deafness, blindness, spastic paralysis and other defects were observed in patients who have survived tuberculous meningitis after streptomycin therapy. Such sequelae have usually been ascribed to incorrect dosage or inadequate purification of the antibiotic. In the Italian literature Bulgarelli called attention to somatic constitutional changes as the result of the disease itself. Schönenberg made similar observations on two children, aged 9 and 6. Adiposity of the type observed in Cushing's disease or in adiposogenital dystrophy developed in these children during their convalescence after tuberculous meningitis. In one child, adiposity was associated with striae distensae and osteoporosis. The other child had neither osteoporosis nor striae but a genuine adiposogenital dystrophy, and there were psychointellectual changes; intelligence was somewhat retarded, and silly behavior predominated. Extreme forms of obesity have been noted after encephalitis. The so-called tuberculous meningitis is really, particularly when treated with streptomycin, a tuberculous encephalomeningitis. Either certain hypophysial or diencephalic centers might have been involved in the disease process, or changes in blood perfusion and deficient function may have resulted from the vascular changes caused by tuberculous meningitis. Bulgarelli's assumption of pressure produced by the dilated third ventricle are less valid.

Nederl. Tijdschrift v. Verlosk. en Gynaec., Haarlem

50:171-266 (No. 3/4) 1950

*Appendicitis and Pregnancy. F. J. J. van Assen.—p. 171.
Lower Nephron Syndrome. G. A. Lindeboom.—p. 183.
Cystic Degeneration of Ovaries. B. H. Wormgoor.—p. 201.

Appendicitis and Pregnancy.—According to van Assen, the history provides the most reliable diagnostic data in appendicitis occurring during pregnancy. The appendix in pregnancy becomes displaced, so that the tip almost reaches the costal arch. As the result of this dislocation, the point of tenderness is also changed. During the early period of pregnancy, the symptoms are not much different than the usual ones, but as pregnancy advances, the picture changes. The point of tenderness is now higher up, and Rovsing's sign is rarely elicitable. Diarrhea or constipation are of no diagnostic importance here. Laboratory data are likewise of little value. Leukocytosis, for example, normally occurs in pregnancy. The following conditions must be considered in the differential diagnosis: extrauterine pregnancy, salpingitis, abortion and torsion of an ovarian tumor during the early part of pregnancy; and pyelitis, renal or ureteral calculi, ileus and disorders of the gallbladder during the advanced stages of pregnancy. The most frequent complication of appendicitis during pregnancy is abortion. In simple appendicitis the incidence has been estimated at 11 per cent, in the presence of an abscess at 66 per cent and in the presence of a diffuse peritonitis at 72 per cent. The author presents four case histories and suggests that treatment today can be conservative. Cesarian section is no longer necessary, since the administration of chemotherapeutics or antibiotics, of progesterone and estrone and the use of gastrointestinal decompression make the prognosis much more favorable for both mother and child. Simple appendectomy is the method of choice.

Nordisk Medicin, Stockholm

44:1229-1268 (Aug. 4) 1950. **Partial Index**

*Wilms' Tumor in Children. Review. A. K. F. Jacobsen.—p. 1229.
*Fibrosarcomas and Their Prognosis. G. F. Saltzmann.—p. 1235.
Cytological Diagnosis of Bronchial Cancer. H. Lindeman.—p. 1240.
Six Cases of Wilms' Tumor in Children. A. K. F. Jacobsen.—p. 1244.
Nevus Epithelioma Cylindromatosus with Dominant Inheritance Through Four Generations. R. Weyde.—p. 1249.

Wilms' Tumor in Children.—Jacobsen says that the literature records about 1,200 cases of Wilms' tumor. The tumor occurs most often between the ages of 2 and 3, rarely after the fifth year, is found equally often on the right and the left side and is seldom bilateral. It varies in size from small nodes in the renal substance to tumor formations occupying half the abdominal cavity. It is well circumscribed and metastatizes late, through the venous system. In about 70 per cent of the cases medical aid is sought because of the tumor, in not quite 10 per cent because of hematuria, in some cases because of atypical symptoms; in about 20 per cent, pain is the initial symptom. The results of examination of the blood and urine are uncertain. Differentiation from other retroperitoneal tumors, particularly neuroblastomas, may be difficult. Biopsy is cautioned against because of the risk of spread along the puncture line and damage to the barrier formed by the tumor capsule, while unnecessary manipulation of the tumor may facilitate passage of tumor cells into the blood vessels. Because of the insidious nature of the disease, early diagnosis is made in only about 5 per cent of the cases. Transperitoneal nephrectomy is recommended as the standard surgical method. Authors do not agree as to the advisability of preoperative roentgen treatment, but there is some agreement that it should be used postoperatively. Radium treatmen has been given in but a few cases and without success. Untreated cases are fatal in the course of less than one year. The shorter the duration of the disease the better the prognosis. In more than half the patients surviving five years, the onset occurred in the first year of life. There is no relation between the size of the tumor and the chance of recovery. Metastases to the lungs need not make the condition hopeless. The prognosis is better in tumors of predominantly epithelial structure. Recurrence is seen in about 80 per cent of the cases in the first year after operation. About 5 per cent of the patients survive five years or more.

Prognosis of Fibrosarcomas.—Saltzmann reports on 80 cases of fibrosarcoma treated from 1936 to 1948. The sexes were equally represented. Thirty-six patients are well, 21 of these after a five year observation period. Half the patients who died lived one year after diagnosis. The 16 cases with certain metastases at the start of treatment were all fatal. In 24 patients, the tumor recurred after attempted radical treatment; 10 of these were well after five years. Multiple fibrosarcomas occurred in only three instances. Microscopically, the tumors vary in the general tissue structure, with transitions between bundle structures, which have oblong cells, and homogenous structures, which have round cells. To a certain extent, fibrosarcomas connected with the skin are thought to be of bundle structure type, and those not associated with the skin, of homogenous structure, which in some cases has been found to develop from bundle structure. Whether all fibrosarcomas develop in this way is not known. The prognosis is more favorable in fibrosarcomas localized to the skin. Increased cell polymorphism and occurrence of giant cells and of mitoses are unfavorable prognostic signs. The prognosis is often unfavorable in tumors with coarse granulation of the nucleus. Radical surgical intervention is the best form of treatment. Nearly all patients operated on received postoperative radiotherapy, usually in fractionated doses. In all inoperable conditions, fractionated roentgen treatment was given. Radium intubation proved applicable in the treatment of small superficial fibrosarcomas, in practically all of which, however, radical surgical treatment is possible. This material supports the general view that fibrosarcomas are highly resistant to roentgen treatment, yet two patients given only roentgen therapy are free from symptoms after an apparently satisfactory observation period. The tumors in these patients were in the thoracic wall and accessible to large roentgen doses.

Policlinico, Pract. Sect., Rome

57:997-1010 (July 31) 1950

*Venous Thrombosis: Anticoagulant Therapy. G. Zannini.—p. 997.
Encephalitis and Streptomycin in Relation to Grippe Infection. A. Pani.—p. 1005.

Anticoagulants for Venous Thrombosis.—Zannini reports a case of phlebothrombosis in a woman aged 50 years following a panhysterectomy. Combined anticoagulant therapy with heparin sodium and bishydroxycoumarin (dicumarol®) was instituted immediately after the appearance of the first symptoms of thrombosis and was continued for 30 days. For the first four days, 250 mg. of heparin sodium was given daily, and the heparin treatment then was continued with 80 to 110 mg. per day. The total dose administered was 3,875 mg. On the first day, 300 mg. of bishydroxycoumarin was given, 200 mg. on the second day and 100 mg. on the following days, up to a total dose of 2,000 mg. Treatment with 400,000 units of penicillin daily had been practiced before the institution of the anticoagulant therapy and was continued simultaneously with the administration of the anticoagulants. A clotting time of from 10 to 26 minutes could be maintained. The maximum prothrombin time obtained was 49 seconds. Pain subsided within 72 hours, while edema still persisted. Definite progressive improvement occurred from the sixth to the twentieth day. Roentgenologic examination at the end of this period revealed an extensive obstruction of the deep vascular trunks of the leg, while repeated roentgenologic examination on the thirtieth day showed that these vascular trunks were recanalized in their entire length. Edema had disappeared, and tracings of the venous pulse were normal. The anticoagulants not only arrest the spread of the thrombotic process but also dissolve the clot and may induce canalization of the vessels involved.

Presse Médicale, Paris

58:973-988 (Sept. 16) 1950. **Partial Index**

Problem of Improving the Results of Systematic Roentgenologic Detection of Pulmonary Tuberculosis. M. Bariéty and C. Coury.—p. 973.
**Syndrome of Hypotony of Biliary Tract: Results of Surgical Treatment.* P. Mallet-Guy and L. Durand.—p. 974.
*Therapeutic Trial with Streptomycin in Infectious Jaundice. J. Marassi, M. Amedeo and P. Sassi.—p. 976.

Surgical Treatment of Hypotony of Biliary Tract.—Mallet-Guy and Durand report 135 patients with hypotony of the biliary tract who were subjected to right splanchnicectomy by the subdiaphragmatic route. The operation was performed under manometric and roentgenologic control. Of the 135 patients, 104 were followed for one to nine years. Satisfactory results were obtained in 82.2 per cent; improvement resulted in 5.2 per cent, and 12.6 per cent were therapeutic failures. Biliary hypotony is characterized by abnormally low manometric curves, refractory pain in the region of the gallbladder and, occasionally, attacks of fever and jaundice. Severe dyspepsia and headache complete the clinical picture. The patients are frequently referred to the surgeon with a diagnosis of a syndrome of the common biliary duct, chronic pancreatitis and gallbladder lithiasis. Cholecystectomy is only occasionally indicated for lesions of the gallbladder, while right splanchnicectomy is the method of choice for interrupting the delicate, inhibitory fibers of the muscular apparatus of the biliary tract, particularly in cases of "gallbladder stasis" refractory to medical treatment. Diagnosis of biliary hypotony may be suggested by cholecystography, although the roentgenologic appearance of stasis in the course of a spastic condition of the biliary sphincters may be the same as that of biliary hypotony. When the hypotony is associated with biliary lithiasis, the diagnosis can be established only in the course of a surgical intervention, after puncture of the gallbladder or catheterization of the cystic duct.

Streptomycin in Infectious Jaundice.—Marassi and co-workers treated with streptomycin 10 adult patients, three with epidemic jaundice, four with angiocholecystitis, one with colon bacilli bacteremia and icterus, one with alcoholic cirrhosis and icterus and one with a terminal hepatonephritis. One gram of streptomycin was given daily in divided doses of 0.25 Gm. every six hours for 12 to 15 days. Rapid drop in temperature, pronounced diuresis, disappearance of icterus and frequently a spectacular improvement in the general condition resulted in all the patients except the one with hepatonephritis, in whom treatment was instituted too late. Streptomycin therapy was used in some of these cases after penicillin had failed. The effect of streptomycin was superior to that of penicillin. This was probably due to the multivalent activity of the streptomycin against the bacteria that cause icterogenic septicemia as well as against the bacteria of the biliary tract. Chances for a complete recovery are better the earlier the treatment is instituted. No toxic effects were observed with the dose of 1 Gm. of the drug per day.

Revista Clínica Española, Madrid

37:377-430 (June 30) 1950. **Partial Index**

*Nontraumatic Subarachnoid and Cerebral Hemorrhage: Neurosurgical Aspects. E. Ley, S. Obrador and P. Urquiza.—p. 384.

Nontraumatic Cerebral Hemorrhages.—Ley and collaborators state that subarachnoid and cerebral hemorrhages in young adults are due, in the majority of cases, to spontaneous rupture of congenital cerebral arterial aneurysm or to congenital cerebral arteriovenous angioma, which can be seen by arteriography and can be treated surgically. They describe the neurological symptoms and arteriographic aspects in three series of patients, which included eight cases of repeated subarachnoid hemorrhage from rupture of aneurysm of the internal carotid artery or of its branches, one case of cerebral hemorrhage into the ventricles from spontaneous rupture of a cortical arteriovenous angioma of the middle cerebral artery and one of a spontaneous intracerebral hematoma. Prognosis of cerebral and subarachnoid hemorrhages in young persons is poor, especially i the hemorrhages are repeated. Cerebral arteriography followed by surgical intervention is indicated. In the reported cases, the surgical treatment consisted in (1) ligation of the common carotid artery followed by operation as indicated, in the treatment of a subarachnoid hemorrhage due to rupture of a cerebra arterial aneurysm; (2) ligation of abnormal blood vessels and extirpation of the arteriovenous angioma, and (3) aspiration o blood and blood clots and left frontal lobectomy in left frontal hematoma. The operation is one of emergency, especially if the patient is in coma.

Schweizerische medizinische Wochenschrift, Basel

80:691-710 (July 8) 1950. **Partial Index**

Comparative Study of Metabolic Effects of ACTH and Cortisone. R. S. Mach, P. Ducommun, J. Fabre and others.—p. 691.
*Sympathectomy and Peptic Ulcer. B. Steinmann.—p. 695.
*Effect of Rutin on Blood Coagulation in Regard to Therapy and Prophylaxis with Dicumarol and Its Derivatives. P. Matis, H. Funfack and C. Rockstroh.—p. 701.

Sympathectomy and Peptic Ulcer.—Steinmann reports a woman aged 19 with essential hypertension (210/110 mm. of mercury) due to hypoplasia of the left kidney. Permanent lowering of blood pressure to values varying from 90/65 mm. to 120/85 mm. of mercury resulted from bilateral sympathectomy and splanchnicectomy according to Smithwick's technic. Fifteen months later, severe hemorrhages from a large gastroduodenal ulcer required gastrectomy. History and microscopic examination of the ulcer tissue revealed that ulcer attacks had occurred repeatedly before the sympathectomy and splanchnicectomy had been performed, but without severe complications. This case as well as others in world literature demonstrate that bilateral splanchnicectomy may induce severe ulcer complications, particularly bleeding, in patients with an ulcer in whom bilateral splanchnicectomy had been performed for hypertension. Severe complications of peptic ulcer developed unnoticed because normal epigastric pain sensations were greatly reduced and the vasoconstrictor effect of the sympathetic nerves on the arteries in the splanchnic nerve area was abolished. The vagus tone predominated because of the abolition of the sympathetic counterregulation.

Effect of Rutin on Blood Coagulation.—Matis and co-workers administered to 20 rabbits 50 mg. of rutin per kilogram of body weight by intramuscular route for 40 days. The clotting time and the prothrombin values were determined before, during and after the administration of rutin. The injections did not cause significant changes in the clotting mechanism of the rabbits' blood. Ten rabbits were fed 8 mg. of bishydroxycoumarin (dicumarol®) per kilogram of body weight and then were given injections of 50 mg. of rutin per kilogram of body weight for 30 days. A dose of 8 mg. of rutin per kilogram of body weight was given once more after rutin had been discontinued. There was no significant difference in the response o bishydroxycoumarin before and after the administration of rutin. Intravenous injections of 400 mg. of rutin for 14 days did not produce any significant changes in 15 patients, in whom the clotting time, retraction time and prothrombin time were determined. Lowering of the prothrombin level to 30 to 45 per cent of the normal level was observed in all the patients after administration of therapeutic doses of 250 mg. of bishydroxycoumarin on the fifteenth and sixteenth day. Results suggest that administration of rutin is justified in the course of anticoagulation therapy with bishydroxycoumarin to prevent capillary damage. Rutin thus makes it possible to employ bishydroxycoumarin in treatment of hypertensive patients, of diabetics, arteriosclerotics and persons of far advanced age.

80:831-852 (Aug. 12) 1950. Partial Index

*Significance of Bronchial Changes Caused by Tuberculous Bronchial Lymph Nodes Regarding Course of Tuberculosis in Children. H. Wissler.—p. 831.
Criticism of "Chemotherapeutic Tamponade of Pulmonary Cavities.". W. Rubin.—p. 836.
*Transplacental Passage of Penicillin in Course of Pregnancy. E. Grasset, H. de Watteville and P. Dossena.—p. 841.

Tuberculous Bronchial Lesions in Children.—Wissler reports nine children between the ages of 7 and 15 years with tuberculous bronchial lymph nodes. Compression of an intact bronchus, bulging of an eroded bronchial wall or rupture of a tuberculous bronchial lymph node into the bronchial lumen can cause disturbances of ventilation in the corresponding area of the lung. Bronchoscopy revealed that rupture of a bronchial lymph node occurs relatively frequently. Symptoms vary considerably, or there may be complete absence of symptoms. Lobar or segmental shadows corresponding to the area of involvement of the bronchus are important indications These shadows may be explained by bronchial occlusion, but may also be due to aspiration of infectious material. They are occasionally seen where bronchial occlusion cannot be demonstrated. Aspiration of infectious material from a ruptured lymph node may cause formation of infiltrates of various type, which play a part in the pathogenesis of progressive pulmonary tuberculosis. Bronchiectasis frequently results from rupture of a tuberculous bronchial lymph node into the bronchial lumen. It has not been established whether this condition may subside or may lead to a chronic condition and fibrosis of the lung.

Transplacental Passage of Penicillin in Pregnancy.—Grasset and co-workers administered 300,000 units of crystallized penicillin G by intra-muscular route to 15 pregnant women. Duration of the pregnancy varied from six weeks to full term. Delivery of the fetus by cesarean section was performed in six instances, while pregnancy was interrupted by an abdominal hysterotomy for various conditions in nine instances. Consequently, the exact interval between the penicillin injection and the removal of the fetus could be determined. It varied from 30 minutes to two hours. Determination of the penicillin concentration in the maternal and fetal circulation, in the fetal organs and in the amniotic fluid showed that transplacental passage of penicillin was limited in all instances. The penicillin concentration in the fetus was nevertheless sufficiently high to insure an effective antibiotic action against various microorganisms sensitive to penicillin, particularly on the Treponema pallidum. These results confirmed those obtained by the authors in experiments on rabbits and guinea pigs and those obtained by other investigators on the permeability of the placental barrier to penicillin. The permeability does not vary much from two months to full term of gestation; effective antisyphilitic treatment, therefore, may be instituted at any stage of pregnancy. Concentration of penicillin in the maternal blood should be fairly high to insure a minimum spirocheticidal level in the embryo and to prevent the development of penicillin resistance in the Treponema pallidum resulting from too small doses of the antibiotic.

Semaine des Hôpitaux de Paris

26:3497-3546 (Sept. 6) 1950. Partial Index

Clinical, Biologic and Histological Study of Fatty Infiltration of Liver in 82 Persons Addicted to Alcohol. R. Cachera, M. Lamotte and S. Lamotte-Barrillon.—p. 3497.
*Course of Fatty Infiltration of Liver in Alcoholics Followed Up by Repeated Puncture-Biopsies. R. Cachera, M. Lamotte and S. Lamotte-Barrillon.—p. 3515.

Fatty Infiltration of Liver in Alcoholics.—Cachera and co-workers report 40 alcoholics, 30 of whom had fatty infiltration of liver in the absence of clinical signs of cirrhosis, while 10 had cirrhosis of the liver. The patients were followed up for six months to two years, during which time they were subjected to liver puncture two to six times. Results of liver biopsy compared with those of clinical examination and liver function tests showed that the course of fatty infiltration in alcoholics is extremely variable. Deposits of fat may persist in the liver for prolonged periods up to two years and may be well tolerated. The size of the liver remained unchanged in 11 patients. Liver function tests remained practically normal. The majority of these patients did not gain weight. Alcoholic intoxication continued. Fatty infiltration was reversible in 13 patients. The excessive fat deposits regressed in the course of several months but did not disappear completely in eight of the patients, while massive fatty infiltration disappeared completely in five patients within one to three months. Microscopic examination showed that the disappearance of the fatty infiltration may be accompanied by repair of the parenchyma. Palpation revealed diminution in the size of the liver. Withdrawal of alcohol, adequate dietary regimen and administration of lipotropic agents, such as methionine, choline and inositol favor the patient's recovery. Repeated puncture-biopsies showed that fatty infiltration may persist for years without inducing much cirrhosis and that fat deposits may be associated with focal or annual cirrhosis. There were other cases in which proliferation of new connective tissue rich in cells occurred in the course of massive fatty infiltration, but the cirrhosis had a progressive course while fatty infiltration disappeared. Puncture biopsy of the liver makes it possible to demonstrate the fat deposits, collagenization, inflammatory attacks and cellular lesions. These observations showed the complexity of lesions that may lead to cirrhosis.

Tuberkulosearzt, Stuttgart

4:495-556 (Sept.) 1950. Partial Index

Course, Development and Prognosis of Silicosis and Silicotuberculosis in German Mining Regions on the West Side of the Rhine. G. Worth and H. Dickmans.—p. 495.
Modes of Application and Dosage of PAS (Paraaminosalicylic Acid) in Pulmonary Tuberculosis. W. Rockstroh.—p. 503.
Serum Cholinesterase in Pulmonary Tuberculosis. H. Hörlein.—p. 512.
*Blockage of Sympathicus Trunk in Treatment of Inert Pulmonary Cavities. S. Witte.—p. 518.
*Treatment of Traumatic Tuberculosis of Fasciae of Thoracic Wall: Question of Muscle Tuberculosis. G. Hensel.—p. 522.
Technic of Opening Pulmonary Cavities. W. Junge.—p. 530.

Blockage of Sympathetic in Tuberculous Cavities.—Witte discusses tuberculous cavities that do not close despite adequate pneumothorax therapy. For blockage of the thoracic portion of the truncus sympathicus, the author injected 5 cc. of a 2 per cent solution of procaine hydrochloride (novocain®) at the level of the third to the fourth rib three times a week. These injections were given for 55 days. Roentgenologic control examination revealed that the cavity had become smaller after 16 days and was no longer detectable after 37 days. Thus, a cavity that was refractory to various types of treatment for a period of eight months disappeared within six weeks in response to blockage of the thoracic sympathetic trunk. Three other cases are cited in which tuberculous cavities with stiff walls responded to blockage of the thoracic sympathetic trunk. The technic of the injection and the sympathetic innervation of the lung are discussed. A favorable influence is exerted by the predominance of the parasympathetic as a result of the exclusion of the antagonistic impulses from the sympathetic.

Fascia or Muscle Tuberculosis.—Hensel believes that lesions referred to in the literature as muscle tuberculosis were in reality tuberculous lesions of the fasciae surrounding the muscles. The contractile tissues of muscles rarely show tuberculous lesions, so that one may speak of an "immunity" of muscles to tuberculosis. The author observed seven cases of tuberculosis of the thoracic wall. All these patients originally had a pleural empyema. Despite careful rinsing with procaine hydrochloride or with paraaminosalicylic acid, tubercle bacilli *must have been carried into the thoracic wall.* About two weeks after thoracentesis a dense tumor appeared. Softening and abscess formation in the center of this tumor, with formation of a fistula, were observed later. After the empyema was cured, the fistula was extirpated and the muscles and fasciae were sutured in layers. Examination of the specimen disclosed fascial and not muscle tuberculosis.

Ugeskrift for Laeger, Copenhagen

112:1075-1108 (Aug. 3) 1950

*Investigations on Penicillin Preparations and Dosage. II. K A. Jensen, P. J. Dragsted and I Kiaer.—p 1075.
*Effect of Single Daily Dose of Dipenicillin in Acute Otitis Media with Special Regard to Bacteriology. J. C. Nielsen—p 1080.
Terramycin. A. Perdrup—p. 1089.

Penicillin Preparations and Dosage.—Jensen and his associates state that the penicillin concentration is much lower in the organs than in the blood, higher in acute and subacute foci of infection than in the organs, but lower than in the blood, and in more chronic foci of infection are so low that general administration of penicillin is seldom curative. According to Eagle, the high penicillin concentration in the blood after administration of penicillin sodium G is wasted because the rate of destruction *of the bacteria does not increase proportionally with the penicillin concentration.* However, bacteria are not found only in the blood, and it is necessary to determine what preparation gives the highest concentration in the organs and in inflammatory processes Experimental investigations indicate that injection of penicillin sodium G and dipenicillin (a mixture of *penicillin sodium G and penicillin procaine G*), which give a high concentration in the blood, can bring about over a short period a higher concentration in the inflammatory processes than that attained by injection of penicillin procaine G. Investigations in man show that this rule holds at least in the treatment of pulmonary diseases. Injection of 600,000 units of penicillin procaine G rarely gives measurable amounts of penicillin in the sputum, but 600,000 units of dipenicillin gives it in almost all cases, and penicillin sodium G is superior to both in this field. The penicillin preparation A, with special affinity for lung tissue, is particularly suitable for treatment of lung infections in which a high penicillin concentration is desired, also in chronic focal processes in the lungs. The development of this preparation paves the way for the production of other preparations with high affinity for the lungs. Chemotherapy must be guided not only by the localization and nature of the infection but also by determinations of resistance. When bacteria that are power*ful producers of penicillinase destroy the effect of penicillin, an* attempt must be made to eradicate them with other agents before penicillin is used again.

Dipenicillin in Acute Otitis Media.—Nielsen gives detailed tabulation of 650 bacteriologic examinations and about 200 determinations of resistance in 65 cases of acute otitis media treated with one daily dose of dipenicillin (a mixture of penicillin sodium G and penicillin procaine G). Patients under 7 years of age were given 200,000 units, those over 7 years, 400,000 units. Dipenicillin is considered preferable to preparations containing only penicillin procaine G, as the penicillin sodium content gives such a high concentration in the blood that the tissue concentration reaches a rather high level. The treatment was continued for one or two days after the discharge ceased and was always applied for at least six days. Of the bacteria of primary importance, *hemolytic streptococci were established in 20 cases, pneu*mococci in 37 and Pfeiffer's bacilli in six. The otitis was due to secondary bacteria, Staphylococcus aureus and Streptococcus faecium, in only two cases. The average number of days before disappearance of the primary bacteria and of duration of the discharge was 3.2 and 5.4, respectively, in the cases with hemolytic streptococci, 2 and 5.3 in the cases with pneumococci and four and six in the cases with Pfeiffer's bacilli. There were no complications. Recurrence was seen *in one case, reinfection in* two. All hemolytic streptococci are sensitive to penicillin; pneumococci are about equally sensitive, and Pfeiffer's bacilli are most often resistant to penicillin but benign in the middle ear. Therefore, about 90 per cent of the cases of acute otitis are cured by penicillin. If six or seven days' penicillin treatment is without effect, the cause should be sought in bacteria resistant or weakly sensitive to penicillin and determinations of resistance made, or possibly streptomycin or aureomycin therapy should be tried.

Wiener klinische Wochenschrift, Vienna

62:417-432 (June 16) 1950

Thrombophlebitis Saltans and Phlebothrombosis E. Eckl and F Leibetseder—p 420.
*Acidity and Ulcer. Studies of Ulcerous Stomach with p_H Stomach Tube H. Kreitner.—p 422.
Hemorrhagic States. K. von Bujniewicz.—p 427.

Acidity and Ulcer.—Kreitner determined the acidity of the gastric juice of 40 patients with duodenal ulcer and of 20 patients with gastric ulcer, by using a p_H stomach tube. This tube facilitated the continuous determination and control of the hydrogen ion concentration in the stomach of the patients and thus helped to produce a kinetic picture of the secretory power of the stomach, at least with respect to the secretion of free hydrochloric acid. Results revealed a primary disturbance of the gastric secretion This disturbance does not consist in the production of a particularly active gastric juice, as some investigators have asserted nor in a specific hyperexcitability of the stomach, with excessive secretion of hydrochloric acid, as was considered by others. The disturbance consists rather in the *continuous secretion of a gastric juice which by its p_H is close* to the optimum of the pepsin effect. The stomach with an ulcerative lesion is regulated in conformity with a p_H value of around 2 This acidity level is maintained also during the interdigestive phase and during sleep. This regulation anomaly is the expression of a sympathetic nervous disturbance. The disturbance may have its origin *in the intramural* nervous terminal plexus of the stomach wall itself at one time and in the spinal cord, *in the medulla oblongata, in the diencephalon or* hypothalamus at another time.

Zeitschrift für Kinderheilkunde, Heidelberg

68:297-418 (July 24) 1950. **Partial Index**

Hemolytic Crises in Infants with Familial Icterus. E. Grundler.—p 297
*Penicillin Therapy in Scarlet Fever with Particular Consideration of Persistence of Infectivity and Immunity. H. Jebens—p. 303.
Differential Diagnosis of Boeck's Sarcoid K Knuth—p. 318.
Encephalomyocarditis and Its Differentiation from Poliomyelitis F Koch—p 328.
Diphtheria· Epidemiology, Particularly of the Toxic Form H. Niggemeyer—p 368.
Brachymesophalangia of the Little Finger. F. Schmid and F. Junker—p 399.

Penicillin Therapy in Scarlet Fever.—Jebens collected observations on 161 scarlet fever patients; 80 of these were treated with penicillin, *while 81* in alternate order were *not* The dosage was adjusted to the duration of the fever. The administration of penicillin was usually continued for four to five days after the fever had subsided, but treatment was never *discontinued before the end of the sixth day. Defervescence* usually took place within two and one half days (in the control cases in five and one fourth days). The daily dose was usually 160,000 Oxford units, given in divided doses every three hours The total dose was usually around 1,000,000 Oxford units Bacteriologic tests revealed that all children treated with penicillin were free from hemolytic streptococci after three days. In 30, hemolytic streptococci reappeared before the patient was discharged; 18 of these 30 remained in the isolation ward for six weeks, and complications developed in 10 of them The 30 caused a total of six new infections after their return home; *four of these were caused by the 12 who had been* discharged early and two by the 18 who had been in isolation for six weeks. Of the 50 children who showed no recurrence of hemolytic streptococci, seven remained in isolation for six weeks and 43 were discharged early. None of these 50 caused new infections in other persons, although there was a recurrence of hemolytic streptococci after discharge in eight of the 43 Tests investigating the formation of immune bodies between the twentieth *and fortieth days* disclosed that antibody formation was weaker in those in whom treatment was begun early and stronger in those who had had complications and in whom treatment was begun later.

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Studies in Lobotomy. Milton Greenblatt, M.D., Robert Arnot, M.D., and Harry C. Solomon, M.D., editors. Cloth. $10. Pp. 495, with illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

This book is a careful scientific evaluation of prefrontal lobotomy in an extensive series of cases at the Boston Psychopathic Hospital. The 500 patients were not only specifically selected on the basis of three to five years' hospitalization, but were also subjected to intensive clinical, anatomic, psychological and sociologic investigations preoperatively and postoperatively, by 30 different contributors comprising all the specialties related to neurology, neuropsychiatry and neurological surgery. The majority of the cases represented long-standing cases of schizophrenia with little probability of recovery by any other means of psychiatric treatment. It was concluded that through prefrontal lobotomy by the "open" method, approximately 40 per cent are benefited, in that they can live outside the hospital, and 20 per cent can be relatively self sufficient and self supporting. A high proportion of the remaining 60 per cent live a more satisfying and contented life in institutions.

A readable review of the recent literature in psychosurgery emphasizes the value of the "open" operation by the Lyerly-Poppen technic, because of the possibility of direct visualization and strict attention to the inferior or orbital frontal fibers which connect the frontal lobes with the thalamus and hypothalamus. With this technic, hemorrhage can be more carefully avoided and localization of the plane of section in relation to cerebral structures can be more accurate. The results in the affective psychoses (involutional and manic-depressive) have been the most encouraging. Lobotomy has also been successfully employed in selected cases of intractable pain, such as with metastatic tumors, phantom limb, tabes and facial neuralgia. Anatomic studies showed a surprising variability of lesions produced by leucotomy dependent on the plane of insertion of the leucotome, the extent of the incision and the adjacent associated hemorrhages and necroses.

The chapter on the technic and complications of the standard prefrontal lobotomy by Dr. Poppen will interest all neurosurgeons who have a justifiable aversion to the "blind" division of brain tissue. The mortality rate was 1 per cent. The postoperative behavior is discussed by Dr. Rose, who notes the temporary disturbance in control of the urinary bladder, the variable period of lethargy with short attention span and poverty of mental content and the excessive reactivity to painful stimuli applied to the skin. The follow-up studies were intensively and elaborately performed and were aimed at discovering which clinical syndromes were benefited and which were not; which individual signs and symptoms were benefited and which were not; what changes following lobotomy were observed in the patient's adjustment within himself, with his family, the community and his work; and what factors were of value in selecting cases which might benefit from frontal lobotomy. Unfortunately, neither preoperative nor postoperative pneumoencephalograms were studied to aid in the determinations of preoperative pathology, as distinguished from postoperative pathology and secondary degenerations. However, electroencephalograms and electrocortical stimulation studies were undertaken. The anatomic studies on the six patients who died from 11 to 235 days postoperatively emphasized local and distant neuronal loss in addition to the destruction anticipated, as a consequence of the planned resection of the cortex and the anatomic severance of the frontal white fibers. This was dependent not only on the site and method of section but also on the circumstances of hemorrhage as the section is carried through its planned extent, and the methods used to control hemorrhage. For example, severance by the method of suction tended to cause more damage from greater tissue loss and concomitant thromboses than the method of blunt section by a leucotome. Regardless of whatever external cerebral reference points the surgeon may utilize, the location and orientation of the incision in the cerebral substance are subject to variations in all three planes of space occupied by the frontal lobes, and, finally, the operator himself becomes the most variable factor determining the lateromesial extent, depth and width of the severance of cerebral tissue. Hence, the attempt to correlate the behavioral changes with specific topographic areas in the frontal lobe and anterior thalamus must also take into account concomitant damage to the cingulate gyrus, fibers of the anterior limb of the internal capsule and the subthalamic region and the island of Reil. These changes probably account for the great variations occurring clinically in postlobotomy patients. The relative values of topectomy, thalamotomy and cortical undercutting were also considered. On the whole, this book presents an unbiased and objective outlook on the assets and liabilities of lobotomy—the degree of benefits to be expected as well as the defects which may result.

Malignant Disease and Its Treatment by Radium. Volume III. By Sir Stanford Cade, K.B.E., C.B., F.R.C.S., Surgeon, Westminster Hospital, London. With a Foreword by Sir Ernest Rock Carling, F.R.C.P., F.R.C.S., F.F.R., Consulting Surgeon and Vice-President, Westminster Hospital, London. Second edition. Cloth. $12.50. Pp. 446, with 548 illustrations. The Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1950.

This is the third volume of a four volume series and deals with common neoplasms of the breast, thorax, abdomen, pelvis and the male and female external genitalia. It continues the authoritative presentation of the incidence, symptomatology and diagnosis of malignant disease characterizing the previous volumes. Although chiefly concerned with radium therapy, the book contains adequate discussions of the most appropriate methods of treatment. The illustrations are numerous, and some are excellent, but those of lung neoplasms are poorly reproduced. The radiotherapy described represents one English view, which may be at variance with the American trend toward more extensive employment of roentgen therapy. The volume should be useful to clinicians dealing with the diagnosis and treatment of malignant disease, regardless of the emphasis on radiation therapeutics.

Supervoltage Roentgentherapy. By Franz Buschke, M.D., Simeon T. Cantril, M.D., and Herbert M. Parker, M.Sc. Cloth. $10.50. Pp. 297, with 150 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This book is a valuable, detailed, well written and amply illustrated record of work done with an x-ray machine delivering roentgen rays with energies from 200 to 800 kv. The results in carcinoma of the esophagus, the maxillary sinus, the larynx, the urinary bladder, the breast and the cervix uteri, in malignant tumors of the pharynx and in pituitary adenoma are described. Of special interest are the favorable results in otherwise inaccessible esophageal tumors and the technical hints gathered from the work with the hypophysial tumors. Of interest also are the reasons given by the authors (page 200) for omitting postoperative radiation after a carefully done radical operation for carcinoma of the breast, and, finally, their general conclusion that promise of future advances lies not so much in exploring the region of higher voltages as in that close cooperation whereby the treatment is adapted as precisely as possible to the particular case. The book is recommended to the attention of both surgeons and roentgenologists.

Les maladies des coronaires: L'infarctus du myocarde, l'insuffisance coronarienne. Par Ch. Laubry, professeur de Clinique cardiologique à la Faculté de médecine de Paris, et P. Soulié, professeur agrégé à la Faculté de médecine de Paris. Second edition. Paper. 2400 francs. Pp. 618, with 299 illustrations. Masson & Cie, 120, Boulevard Saint-Germain, Paris 6^{e}, 1950.

The first edition of this extensive monograph appeared during the German occupation in 1943, while France was cut off from England and America, and it is fitting that this edition should appear in the year of the First International Cardiological Congress, of which Professor Laubry was the distinguished president. The authors have now "had the full echo of the revolutions in electrocardiographic technic operating in America."

The subject matter is well covered. There are sections on the anatomy, physiology and pharmacology of normal coronary vessels. There is a chapter on etiology. That on the abnormalities of the electrocardiogram comprises 68 pages. The chapter concerned with the clinical description of acute coronary thrombosis is 114 pages long and is done with great clarity and order, although the value of such a detailed exposition is doubtful. Pathological anatomy and the physiological and pharmacodynamic changes induced by coronary disease are also discussed at length. The authors' views on therapy differ but little from those most current in the United States. However, they favor respiratory exercises in the treatment of the patient with angina and are not averse to such agents as baths and massage. In acute cardiac infarction they have had unhappy experience with bishydroxycoumarin (dicumarol®) and regard it as dangerous. They are inclined against the use of high concentrations of oxygen.

The book is profusely illustrated with reproductions of electrocardiograms, of diagrams showing their relation to cardiac lesions, of roentgenograms, photomicrograms and gross specimens. The reproductions of the first two are excellent, but some of those of roentgenograms and microscopic sections are only fair, while those of gross specimens leave much to be desired. The scope of the work is evident from the bibliography, which occupies 47 pages and gives over 1,000 titles, many of them by American authors. Far too detailed to be put into the hand of medical students, this extensive monograph will be of value to experts in the field as a critical compilation of the literature and as a record of the impact made by the more experimental American school on a great medical tradition which has remained for a long time in the descriptive phase.

Annual Review of Physiology. Victor E. Hall, Editor, Jefferson M. Crismon and Arthur C. Giese, Associate Editors. Volume XII. Cloth. $6. Pp. 609. Annual Reviews, Inc., and the American Physiological Society, Stanford, Calif., 1950.

Each of these annual reviews as it appears affords the medical reader a priceless opportunity to note the present status of some of the perennial problems of physiology and to discover new trends in research. The present volume lives up to its predecessors in these respects, and in addition contains a prefatory chapter by DuBois, Fifty Years of Physiology in America, which brings out interesting contrasts between 1900 and 1950 as regards the life of the physiological investigator. As examples of the perennial problems referred to might be mentioned the effects of cold, the existence of gastrin and the multifarious aspects of coagulation. The cause of hypothermic death is still in doubt (page 123), and the proof that gastrin exists is weak (page 209). The proposal of a new theory of coagulation (page 239) will be hailed with groans by medical students, whose minds in the past have certainly been overburdened with mistaken and impractical information on the subject. In view of the importance of hemorrhage and thrombosis, much interest attaches to recent work, referred to in this volume, on substances hastening and retarding coagulation.

In the field of respiration, the war prompted much excellent work on anoxia, decompression phenomena and oxygen intoxication. The physiological world has recovered from its phobia of resuscitation apparatus and its obsession with the virtues of carbon dioxide, two favorite notions of the late Yandell Henderson; it is now agreed that "mechanical respirators . . . improve the chances of survival" (page 191) and that the "addition of carbon dioxide was of no value" under certain conditions (ibid.). New trends are exemplified by the introduction of electrophrenic respiration (page 191); the development of cybernetics and the study of the wiring of the brain, whereby tinnitus, for instance, is revealed as a feedback phenomenon (page 422); continued disclosures of the treacherous nature of ionizing radiations (page 29); further probing into the submicroscopic structure of cells, and the demonstration of the particulate nature of such things as the "killer character" in paramecia (page 63).

The stimulating effect of practical industrial problems on research is exemplified impressively by recent discoveries regarding artificial insemination (page 537). Because of their exceptional potentialities, spermatozoa are very informative cells for experimentation. Large scale studies were necessitated by the fact that in a single year "2.5 million cows have been inseminated in the U. S. A. alone, and the enterprise which provides the semen and performs the inseminations is now a 12 million dollar industry employing more than 2,000 men and women full time." The resulting harvest of scientific information has been of the greatest practical and theoretical interest. This volume is recommended to the attention of everyone working in the medical sciences, particularly to authors anxious to make sure of the completeness of their information on a given subject.

Russian Impact on Art. By Mikhail Alpatov. Edited and with a Preface by Martin L. Wolf. Translated from the Russian by Ivy Litvinov. Cloth. $7.50. Pp. 352, with 32 plates. The Philosophical Library, Inc., 15 E. 40th St., New York 16, 1950.

The author of the book is a professor at Moscow University and a recognized expert on the history of art. The book was translated from Russian into English by Ivy Litvinov, the English-born and English-educated wife of the well known statesman. The title suggests that the author is about to discuss the subject of Russian art per se, without necessarily attempting to prove its superiority over the art of the rest of Europe. He makes an attempt to be objective but is eventually carried away by the temptation to demonstrate that the Russian art is somehow more "original" and more "profound" than the art of Western Europe because it is closer to the soil. This is a familiar theme which runs through all the recent works emanating from the U.S.S.R., whether their authors discuss discoveries in the field of science or accomplishments in the field of arts. This movement, sponsored by the authorities, is intended to replace "the slavish adoration" by the Russians of Western Europe, its culture and all it stands for, by insisting on the superiority of things Russian. In this it differs little, if at all, from the reactionary slavophile movement of the Tsarist regime.

The complaint that Western Europe, by which is meant Germany, France and England, failed to comprehend and to appraise the Russian art is of course not true. Thus, Nietzsche early spoke of Dostoevski in terms of highest praise. More books and interpretations of that author appeared in the German than in the Russian. Mérimée and Voguet introduced the Russian classics to the French public. The popularity of Tolstoy, Dostoevski and Turgenev with the French, the Germans, the English and the Americans requires no comment. Were the author to stress that the Russian prose fiction, as represented by the famous triad, was superior to that of the prose of Western Europe, no one would challenge his statement. But, in the fields of architecture, sculpture and painting, Russian art, when compared with that of the Italian Renaissance, the Flemish school of painting and the French painting of a later period, is totally insignificant. Most of the famous churches and palaces of the Tsarist Russia were designed by Italian architects. The famous Rastrelli, whom the author claims for a Russian, was born in Italy and had his artistic training in that country. Almost all Russia's talented architects, painters and sculptors studied in Italy and in France. The author fails to acknowledge the indebtedness of his country to Western Europe in the matter of fine arts. His partiality to things Russian is evident in such statements as that Lomonosov, like Leonardo da Vinci and Bacon, is one of the last "encyclopedic geniuses" of Europe, that Tchaikovsky is more profound that Wagner, that Chekhov's short stories are superior to those of de Maupassant, that Derzhavin was a great poet and that the essayist Chernyshevski understood life "more fully, deeply and broadly" than Hegel, the great German philosopher and esthetician. Not satisfied with his own prejudices, the author invokes those of the older Russians. He quotes Tolstoy, who, after his conversion to Christianity, decided that French literature was immoral, the painter Kramskoy, who considered French painting "unprincipled," and Moussorgsky, who thought that the German symphonic music was too abstract and so dubbed it "mathematics." All these statements reflect nothing more than exaggerated nationalism, a malady which was well known and was vigorously resisted by the enlightened Russians of the type of Turgenev, Belinsky, Herzen and others.

There is no denying that Russia had and has its own art and its own artists and that like the art of any other country these works possess a certain originality which is distinctly theirs. The author attempts to cover entirely too vast a field. As a result, most of the chapters, with the exception of those dealing with the art of icon painting, are inadequate and superficial.

Preventive and Corrective Physical Education. By George T. Stafford, Ed.D., Professor of Physical Education, University of Illinois, Urbana, Ill. Second edition. Cloth. $3.75. Pp. 312, with 74 illustrations by Gene A. Logan. A. S. Barnes and Company, 101 Fifth Ave., New York 3, 1950.

This book for the physical education teacher stresses the importance of a schedule of corrective work in physical education consistent with the interests and capacities of those students unable to profit from the regular program of activities. In many schools too little is done to provide suitably graduated exercise for the handicapped child or the pupil with minor deviations from the normal. A program of therapeutic exercise to be administered under medical direction by the physical education teacher is recommended for this group. A practical plan for such a program includes (*a*) a broad activity program for students found by medical examination to be physiologically sound, (*b*) group corrective work for those with minor health problems, such as poor posture or weak feet, (*c*) individual corrective work on medical prescription for those with more serious disorders, and (*d*) supervised rest on medical advice for certain children during the physical education period.

The author emphasizes the need for developing this kind of program at the elementary school level when the best results may be expected. Since in the corrective aspects of physical education the teacher is actually a technician carrying out a medical prescription, a major portion of the text is devoted to developing a basic understanding of the varying conditions with which he may be expected to deal, a working terminology, the applicable exercises and the kinesiology involved. The volume should be useful as a textbook for prospective physical education teachers and as a guide for those in service. It is to be hoped that its emphasis on corrective exercise for a group of students who have often been neglected will stimulate the development of more comprehensive physical education programs designed to meet the needs of all students.

The Cerebral Circulation in Health and Disease. By Carl F. Schmidt, A.B., M.D. Publication Number 68, American Lecture Series, A Monograph in American Lectures in *Physiology*. Edited by Robert F. Pitts, M.D., Ph.D., Professor of Physiology, Syracuse University School of Medicine, Syracuse, N. Y. Cloth. $2. Pp. 78, with 12 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This is a valuable addition to the physiological and clinical literature on cerebral circulation. After a brief description of the arterial and venous cerebral system, in which the results of cerebral angiography are emphasized, the physiology and pharmacology of cerebral circulation are discussed. These investigations are largely based on the measurement of the diameter of the pial vessels and temperature changes in various parts of the brain. Since definite species differences exist in the reactivity of the cerebral vessels to physiological factors and to drugs, the development by Kety and Schmidt of a quantitative method for the determination of cerebral circulation which is applicable to man was of greatest importance. The results obtained with this method in several clinical conditions are described. This little book is highly recommended to physiologists and clinicians. The bibliography is rather incomplete.

Recent Advances in Chemotherapy. Volume I. By G. M. Findlay, C.B.E., Sc.D., M.D. Third edition. Cloth. $7.50. Pp. 625. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1950.

When the first edition of this work was published 20 years ago, chemotherapy, with the exception of antisyphilitic therapy, was confined largely to tropical diseases. Since then, the discovery of the sulfonamides and the antibiotics has removed this subject from the realm of the esoteric to a place of major importance in therapeutics. As evidence of the increased scope of chemotherapy, it may be noted that the first edition of this work occupied a single volume; the present edition, when completed, will encompass four. This volume may be considered as a revision of earlier ones, since it is confined to the chemotherapy of protozoan diseases, the majority of which are tropical in origin. The diseases discussed are those due to insects (principally scabies), to helminthic infestations (amebiasis, leishmaniasis, trypanosomiasis) and to various protozoa (babesiasis, bartonellosis, toxoplasmosis, coccidiosis and trichomoniasis).

The pharmacology of the agents discussed is adequately reviewed, and the principles and details of therapy are presented. The only major criticism that might be leveled at this work concerns the lack of adequate discussion of the pathogenesis of the diseases for which therapy is recommended. A more complete outline of the life cycles of some of the organisms and a discussion of the routes of the infection and its natural course would aid the reader in understanding the principles and advantages of the various forms of therapy and in utilizing the text adequately. It is interesting to note that considerable attention is paid to veterinary chemotherapy, particularly in the chapter on helminthic infections, where an excellent discussion of the use of phenothiazine is given, and in the chapter on miscellaneous protozoal infestations, where such subjects as blackhead of turkeys and fowl coccidiosis are adequately treated. This volume should be of value to students of tropical medicine, those interested in therapeutics and veterinarians.

Aetios of Amida: The Gynaecology and Obstetrics of the VIth Century, A. D. Translated from the Latin edition of Cornarius, 1542, and fully annotated by James V. Ricci, A.B., M.D., Clinical Professor of Gynecology and Obstetrics, New York Medical College, New York. Cloth. $7. Pp. 215. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1950.

Dr. Ricci, in this scholarly translation of a sixth century encyclopedia of obstetrics and gynecology, has made available to his fellow practitioners a classic of great worth. In the accumulation of a knowledge which will qualify one today in the practice of medicine, too often the physician's gown hides abysmal ignorance of the roots of the healing art, and the centuries of groping which have culminated in the precision methods of 1950 could be no better emphasized than by perusing this small volume.

It must be reiterated that Aetios' work was encyclopedic; in the manner of a learned student, he condensed and edited the medical knowledge of the first five centuries of the Christian era. Dr. Ricci now places this at the reader's elbow for his moments of leisure. No one can fully appreciate the arduous task involved in this translation and the accompanying 96 pages of notes, definitions and other clarifying addenda, which are all so skilfully handled by a busy physician. There is scarcely a dull line in the book. The dissertations are numerous, and each the literary product of an "authority," displaying a knowledge which seems at times unbelievably keen and at the same time naïvely humorous. Excerpts from two topics are cited as typical: Archigenes and Leonides, prior to 200 A. D., gave an excellent description of the physical signs of cancer of the breast. "Further, it produces piercing pains radiating over a wide area, so that often it excites by sympathy a malignant inflammation of the axillary glands. . . . Indeed ulcerated cancer erodes continuously and penetrates to the very depths, for it cannot remain stationary, and it discharges a sero-sanguineous matter worse than the poison of wild animals; detestable in amount and odor. . . . Cancers arising in the breast invariably must be abandoned, . . . incurable, because they cannot be extirpated completely. . . . But those tumors which develop on the top of the nipple are curable because the diseased part can be easily excised." In treatment, Leonides states, "I make the patient lie down." Then progressive excision and cauterization was done, followed by dressings to promote suppuration. During healing, "The patient must abstain from wine, indigestible foods, and cold drinks." Before surgical intervention, "Of the more simple remedies let her drink the warm blood of a freshly killed goose or duck. . . . Of value also is a decoction of crayfish kept in asses' milk for five days." The latter, if used for 35 days, "will render cancer of the breast very amenable." These remedies one should "use with confidence and disregard the scoffers who but little understand the nature of the disease."

Amenorrhea, then as now, was no trivial symptom: "For the sake of conception, and because almost all women live with that purpose, monthly periods are necessary." The complications which might ensue varied from insanity to erysipelas. The common causes of this symptom are listed, but Rufus and Aphasia naïvely add that "singers and dancers naturally do not menstruate, because in these there is nothing left (for menstruation), since excessively violent exercise consumes it." The choice of remedies was as varied as it is today, but all others failing, these early endocrinologists found most successful a laxative of gummy thistle and parsley (estrogen withdrawal?).

This is not a desk reference volume for the busy practitioner; it contains not a single line of commercial value. Its appeal, however, should be universal to physicians of today who are directly, or only remotely, interested in the diseases of women. Structurally, although there are no illustrations, the book is excellent.

Einführung in die innere Medizin. Von Dr. Hans Julius Wolf, ausserplanmässiger Professor für innere Medizin an der Universität Göttingen. Fourth edition. Cloth. $6.50. Pp. 653, with 73 illustrations. Georg Thieme, Diemershaldenstrasse 47, Stuttgart O; Imported by Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1949.

This textbook on internal medicine is not so brief as a quiz compend nor so voluminous as a fully detailed textbook, which is sometimes so detailed as to be confusing to medical students. The work is based on the author's experience as a teacher and practitioner and may, as he suggests, be useful in orienting medical students entering their clinical years and also as a quick reference to the essential facts for general practitioners. The fact that only eight years have elapsed between the first and fourth editions betokens the work's popularity. The book has a detailed table of contents covering 14 pages which, in general, is arranged by systems or organs. In addition, there are sections on the infections, contagious and noncontagious, on the animal parasites of man and on the common chemical poisons. The space devoted to the discussion of each disease varies with the author's estimation of its importance. In general, the clinical picture, physical observations, diagnosis, etiology, course and treatment are all briefly summarized. Where complications are common they are discussed, as is the pathological anatomy and physiology and the significance of technical aids in diagnosis where these are of sufficient importance. Although many of the discussions are brief, they are clear and readily grasped. Since discussion of conflicting theories and points of view is avoided, the presentation appears somewhat dogmatic, but this is doubtless unavoidable because of the nature of the work.

The book is attractively bound in cloth, clearly printed on good quality paper, and the illustrations, mainly in black and white, are satisfactory. The reproductions of roentgenograms are particularly good and well chosen. There are a few colored plates, mainly of blood smears, and some useful charts. There is a good index but no bibliography. The writer has a good knowledge of the literature and a clear style. The emphasis placed on different diseases naturally varies somewhat from that usually found in comparable American works, mainly because some diseases common in the western hemisphere are absent or rare in Europe. Not that exotic diseases are neglected, for there is a special section covering them. Certain things are omitted, such as some of the rarer conditions like Löffler's syndrome and Reiter's disease and marihuana addiction, but these omissions do not detract from the adequacy of the book as a whole.

Exercices chirurgicaux (de l'amphithéâtre à la salle d'opérations). Par J. Sarroste et R. Carillon. Avec la collaboration de Pesme, et al. Préface due Médecin-Général Paitre. Second edition. Paper. 2100 francs. Pp. 441, with 350 illustrations by Berkman, Souday and Bonde. Librairie Maloine, 27, Rue de L'École-de-Médecine, Paris 6e, 1950.

This work on surgical technic is well organized. Throughout the book, for all subjects discussed, a brief introductory statement is followed by definitions, indications, anatomic background and surgical technic.

The book begins with a description of ligature of the arteries, after which, in the second chapter, exposure of the peripheral nerves is discussed. This is followed by a section written in collaboration with M. E. Sarlin on surgery of the lumbar sympathetic nerves. The third division of the book concerns surgery of the bones and articulations (amputations, disarticulations, resections and arthrodeses). This portion is a thorough, succinct evaluation of the principal operative procedures in this domain. In the fourth chapter, operations on the head, neck and spinal cord are described. Here also the original orderly scheme is followed. Regrettably, the material on surgical treatment of the spinal column is abbreviated. A discussion of ophthalmic surgery is added here. In the chapter on surgery of the thorax, perhaps it would have been well to describe the emergency approach to the heart, which is so important in cases of sudden cardiac arrest. The description of radical mastectomy is overcondensed. The subject of surgical therapy of the intra-abdominal organs (chapter 6) is introduced with an exposition of surgical procedures for hernia. It is heartening to note that the work of Fontan, a pioneer in gastrostomy and the first to construct a valve, is given due credit. Routine operations on the small and large intestines are well presented. The description of the operation for removal of the rectum in cases of malignant disease could be augmented advantageously with more modern concepts. This applies also to the chapter on surgery of the biliary tract. The closing chapter deals with surgery of the genitourinary apparatus. Here also the descriptions are curtailed. Hysterectomy is described, but other operations on the female genitalia are omitted. The illustrations are clear and, for the most part, diagrammatic. The work will serve its purpose for the student and general surgeon who read French; to them it can be recommended with the reservations noted.

Die Tuberkulose vom Standpunkt des Internisten. Von Prof. Dr. Hans Kutschera-Aichbergen. Paper. $5.70. Pp. 308, with 43 illustrations. Springer-Verlag, Mölkerbastei 5, Wien 1, 1949.

Dr. Kutschera is professor of medicine at the University of Graz, Austria. This book is written primarily for physicians interested in the medical treatment of tuberculosis. It should serve for better training of young physicians in recognition of early cases of tuberculosis in which medical treatment still could be quite successful. Dr. Kutschera has found this training considerably deficient, as is obvious from various histories he cites, in which the correct diagnosis of tuberculosis was made only after the patients had been treated for a prolonged time on the basis of a mistaken diagnosis.

To the American reader it is of particular interest to realize the tremendous increase of tuberculosis in certain parts of central Europe, where the mortality figures increased from four to six times over those in the year preceding the outbreak of the second world war. The death rate is about 500,000 per year among the population of approximately 500,000,000 people in Europe. Dr. Kutschera draws from a broad experience with tuberculosis. In the impoverished countries of central Europe, it is necessary to use comparatively inexpensive methods for routine checking of the large populations. Roentgenography as a diagnostic means is used only if other observations, such as diminished vital capacity, are suggestive of pulmonary disease. Obviously, spirometry is used rather extensively in the hospitals of central Europe.

Of particular interest is the experience of the author with active immunization of otherwise almost hopeless cases of advanced pulmonary tuberculosis with virulent tubercle bacilli, producing superinfections in the skin. These experiments, which in a considerable number of patients were unbelievably successful, are based on the observation that incidentally produced infections of the skin (following tracheotomy in tuberculous patients) have a beneficial effect on the course of severe open cases of pulmonary tuberculosis. Dr. Kutschera believes, that such active infections, either by the same strain recovered from the patient or by a virulent strain from another tuberculous patient, have a curative effect by increasing the resistance of the host against the pulmonary disease. In general, the factor of resistance is much more conspicuously stressed throughout the book than infection, per se.

One might disagree with some decidedly dogmatic statements, by no means proved by sufficiently clarified morphological data: for instance: cases of pulmonary tuberculosis are classified according to two large groups, one as beginning with a unicentral lesion (in particular the various forms of primary filtration, Assmann) the other the multicentric beginning types. While the former is admittedly the effect of an exogenous new infection (and with this statement certainly numerous pathologists will agree), the multicentric form is supposed to be based on hematogenous invasion of both lungs from a still active focus, usually in the lymph nodes of the primary complex. The later pictures in both types are admittedly very similar to each other, especially in the progressive form. There is no sufficient evidence to date to support the view that the bilateral phthisis, progressing from the apical to the basal areas, is the effect of a secondary hematogenous spread to the lungs.

There is no question that this book may be of some value to the practicing physician in central Europe who is confronted with tuberculosis in its very early stages. Because of the book's local character it will be of interest only to the reader who is interested in the problem of tuberculosis from a global standpoint.

A Histology of the Body Tissues with a Consideration of Their Functions. By Margaret Gillison, Lecturer in Physiology at the I. M. Marsh College of Physical Education, Liverpool. Foreword by R. C. Garry, D.Sc., M.B., Ch.B., Regius Professor of Physiology, University of Glasgow. Cloth. $3.50. Pp. 220, with 103 illustrations. The Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, 1950.

This small textbook is written primarily for students of physical therapy and physical education and is meant to bridge the gap between anatomy and physiology. The descriptions of cells and tissues are lucid and easy to follow. The text is well illustrated by drawings which are simplified representations of microscopic sections. The vocabulary is extensive for an elementary text, and some terms are used rather loosely; for example, the author refers to the lining of Bowman's capsule as squamous epithelium.

The scope of the book is limited to an introductory chapter on the anatomy and physiology of a typical animal cell, with the amoeba as prototype, followed by chapters on the preparation of tissues, surface and lining tissues, connective and supporting tissues, cartilage and bone, blood and tissue fluids, muscle tissue and the nerve tissues. The introductory chapter is particularly good, as is the brief description of the preparation of tissues for microscopic study. The histological structure of organs is not included, except briefly in connection with the topics of the various chapters. In general, this is an excellent elementary textbook of histology. This book should be of value to students of physical therapy and physical education and to nurses. It should also be of value as an introduction to animal biology.

The Cytology and Life-History of Bacteria. By K. A. Bisset, Ph.D., Lecturer in Bacteriology, University of Birmingham, Birmingham. Cloth. $3.50. Pp. 136, with 43 illustrations. The Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1950.

This volume is a polemic against confining the study of bacteria solely to their physiological properties. The author considers them as living cells with the same structure and functions as other living cells. The limitations of past and present technics for the study of bacterial morphology are emphasized, and new methods are proposed. These include special staining technics for the demonstration of the various components of the bacterium, including nuclei and chromosomes. Also included are discussions of reproduction, sexuality, life cycles and genetics of bacteria. A minimum of proof of structure is established by the author; the problems remain unsolved. The book will be of interest only to microbiologists, geneticists and cytologists who are interested in cell structure and cell metabolism.

One Hundred Years of Indiana Medicine, 1849-1949. Published in Connection with the Centennial of the Indiana State Medical Association. Dorothy Ritter Russo, Editor-in-Chief. Prepared under the Direction of Charles N. Combs, M.D., and Edgar F. Kiser, M.D. Cloth. $4. Pp. 195, with illustrations. Indiana State Medical Association, 1021 Hume Mansur Building, Indianapolis 4, 1949.

This book is a review of 100 years of medical history in Indiana. Dr. C. N. Combs has accumulated material relating to the Indiana State Medical Association over a period of many, many years, and it must have been no small chore to sift it and finally arrive at a choice for inclusion in the book. The book is, of course, concerned with only one of the 48 states, but it should be of interest to doctors elsewhere, because pioneer times in Indiana typified much of that era in the entire Northwest Territory. From this point of view, the editors and other contributors have done exceedingly well with special phases of Indiana medicine and have produced a literary diorama of medical effort and progress in which they and other American physicians may take pride.

Some of the saltier portions in the section by Dr. Combs on the history of the Indiana State Medical Association might be quoted here:

> 1849. Also at this meeting they grappled with problems that, for the sake of science, we all regret they left undetermined: Resolved, That a Committee be appointed by the president to collect, in a systematized form, facts on the duration of pregnancy, and the causes which influence sex.
>
> 1862. Many state medical societies and even the American Medical Association missed one or more meetings during the Civil War, but Indiana did not fail to keep going. However, the usual May meeting was postponed until November and the attendance was slight. The membership was 300 and the annual expense was $93.00.
>
> 1867. A member was expelled for reading a paper on the progress of medical science when it was discovered to be an exact copy of an address delivered by a New York doctor at the New York State Society meeting the year before.
>
> 1877. Governor Thomas Hendricks (granduncle of our Tom) was thanked for being the first governor of Indiana to recommend a State Board of Health.
>
> 1880. Doctor Beck of Fort Wayne wanted to levy $1.10 per member to be paid to the family of a deceased member as doctors were notoriously poor.
>
> 1888. The 38th annual session will go down in the annals as the most memorable—certainly to that date. For the banquet, James Whitcomb Riley, our own Hoosier poet, wrote the original and apropos verses to each toast, and he responded with the premier reading of his now celebrated poem, "Doc Sifers." Bill Nye could not be there but sent a characteristic telegram, "Sorry I cannot be there. May you and your associates continue to take life easily as heretofore." Concluding the seventeen speeches the meeting "adjourned at three o'clock and four minutes, a. m."
>
> 1890. A whole county society was expelled because the majority of the members were physiomedicals and eclectics.
>
> 1893. There was a case reported of suppurative appendicitis cured by calomel and sweet oil. (It was evident that the abscess ruptured into the bowel thus effecting the cure.)
>
> 1898. . . . This year was notable because it gave the meeting a new scientific feature, the pathological exhibit of 175 specimens.
>
> 1901. A paper on spinal anesthesia lies unheralded and unsung as far as the bibliographer is concerned for its title is "Medullary Narcosis."
>
> 1919. A motion was carried to exclude from membership any physician who sought by changing his location to profit by the patriotism of physicians who went to war.

Marriage and Family Relationships. By Robert Geib Foster. Revised edition. Cloth. $2.75. Pp. 316. The Macmillan Company, 60 Fifth Ave., New York 11, 1950.

This book was first published in 1944. It is a comprehensive presentation of problems arising both in marriage and family relations based on the theory advanced in many of the writings of the Menninger group, which stresses the choice facing human beings between love and hate. "Love leads to constructive acts and accomplishments, whereas hate leads to self—and world—destruction." The usual procedure in books of this kind is followed, proceeding from self analysis and self understanding to a discussion of basic needs and human behavior and the understanding of "friendliness patterns" in relation to marriage. From this logically follows mate selection, looking forward to marriage and the evolution of a satisfactory family life, including the introductory year of marriage, sex, money, home, children and relatives by marriage. The family in relation to society as well as other sociologic and human relations are dealt with. There are extensive references for supplementary reading. The book is given a textbook flavor by questions and exercises related to the chapters. It can be recommended for use at the college level and as supplementary material in the hands of discriminating leaders for group discussions in the advanced teens.

Experiments in Social Process: A Symposium on Social Psychology. Edited by James Grier Miller, Professor of Psychology, Department of Psychology and Division of Psychiatry of the Department of Medicine, University of Chicago. Cloth. $3. Pp. 205, with 7 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18, 1950.

To consider current social problems, the technics being developed or refined for their solution and the results of recent experimentation and study in the field of social psychology, experts in various branches of the field were invited to participate in a symposium at the University of Chicago in November 1947. The reports of participants, describing representative samples of recent work and their anticipated application to broader social problems, are presented in the first eight chapters of this book. In the ninth chapter all members of the symposium are joined by a nuclear physicist for a round table discussion of the ways in which the physical and social scientists can best cooperate to remove the threat of mass destruction arising from the development of atomic energy. A relatively young science, social psychology is able to report progress and look forward to even greater advances largely because of improved methodology. The sharpening of such technics as the public opinion survey, field observation and experiment, the laboratory experiment and clinical study, is described and illustrated. The importance of a scientific methodology is emphasized by all the contributors. The exposition and evaluation of this aspect of research in social psychology is one of the chief contributions of the book.

In most instances the writers try to relate or illustrate technic and theory with empirical data from controlled experimentation. Specific experiments with their results are described. There is some tendency, perhaps because of limited space, to fall back on generalizations which seem either premature or unsupported by the discussion and which clutter more than clarify. Most of the contributors, however, seem to be aware of the present shortage and great need of experimental data in a subject which historically has consisted largely of theorizing. Though not highly technical, the book offers considerable insight into the present achievements and future ambitions of the social scientists. The full array of problems to which present technics are applicable has been by no means fully explored. Neither has much experimental data been collected or systematized. But the contributors seem to share the feeling that, although social psychology is in its infancy as a science, it is making a start at forging the solutions to the interpersonal and international problems that beset society.

Certain chapters are exceptionally well written. The subject matter is often entertaining as well as informative. The book, as might be expected from its composition, is not, however, of uniform quality. The material presented is not always new, penetrating or significant. But because of the wide diversity of topics dealt with under one cover, the physician will get a valuable over-all view of this field. The book will add to his awareness of a new sphere of progress which will more and more affect him both as a physician and a citizen.

Old Age: Some Practical Points in Geriatrics and Gerontology. By Trevor H. Howell, M.R.C.P., Lecturer in Problems of Old Age, St. Bartholomew's Hospital, London. Second edition. Boards. Pp. 108, with 9 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London W.C.1, 1950.

In this small volume, Trevor H. Howell has condensed his long experience with clinical problems among older persons and the chronic sick into a readable, useful book. The chapters on Approach to Old Age, Geriatric Rehabilitation, Diseases in Old Age and The A.B.C. of Geriatrics are especially noteworthy for their discussion of the general problems of geriatric medicine. This is not an exhaustive, detailed textbook, but it nevertheless contains many interesting observations on diagnosis, treatment and rehabilitation in respect to diseases commonest among older patients. As the author well says, "Geriatrics is more a state of mind than a branch of medicine or a mode of treatment. It is a reaction against the belief that after sixty a patient is too old to be medically interesting or therapeutically rewarding." The reading of this book will be found rewarding by all physicians who see older patients.

Lippincott's Quick Reference Book for Nurses. By Helen Young, R.N. Editorial Board: Department of Nursing, Faculty of Medicine, Columbia University, Presbyterian Hospital School of Nursing, New York, Mary Elizabeth Allanach, A.M., R.N., Assistant Professor of Nursing, and others. Sixth edition. Cloth. $3. Pp. 626. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St, London, W.C.2; 2083 Guy St., Montreal, 1950.

This book contains up-to-date information. Many changes have been made in this edition, particularly in the section on pharmacology. A table of less commonly encountered diseases has been added, and recent developments in diet therapy have been included. The content is divided into several sections and provides general information on pharmacology, nursing technics, medical and surgical nursing, obstetric nursing and diet therapy. The appendix includes a glossary, tables of measurement, popular and official names of medicinal preparations and diagrams of pressure points showing relation to arteries and bones. This is a handy little volume; if somewhat thinner, it could be called pocket size. The format is pleasing; it is easy to read, and the type and paper are excellent.

Simmonds' Disease: Extreme Insufficiency of the Adenohypophysis. By R. F. Farquharson, M.B., F.R.C.P., Professor of Medicine and Head of the Department, University of Toronto, Toronto. Publication Number 31, American Lecture Series, A Monograph in American Lectures in Endocrinology. Edited by Willard O. Thompson, M.D., Clinical Professor of Medicine, University of Illinois College of Medicine, Chicago. Cloth. $2 Pp. 93, with 5 illustrations. Charles C Thomas, Publisher, 301-327 E Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd, 19 Broad St., Oxford, England; The Ryerson Press, 299 Queen St, W., Toronto 2B, 1950.

This is a valuable monograph. The pathogenesis and pathology are completely and clearly developed. The far reaching effects of this condition on the other endocrine glands and the viscera are discussed in some detail. The clinical course of the disease is thoroughly reviewed. Therapy is given only general discussion, with suggestions for substitution therapy for hypogonadism, hypoadrenalism and hypothyroidism. The advent of potent tropic hormones, such as the adrenocorticotropic and thyrotropic hormones, and their influence on therapy is not mentioned.

Aids to Public Health. By Llywelyn Roberts, M.D., M.R.C.P., D.P.H., Medical Officer of Health, City of Sheffield. Sixth edition. Cloth. $2 Pp. 304. Baillière, Tindall & Cox, 7-8 Henrietta St., Covent Garden, London, W.C.2 [The Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2], 1950.

This book on public health briefly and superficially summarizes modern British public health practices. As a quick review of the general subject it will be useful to public health personnel, although in some respects the information and recommendations are not in accord with latest advances. The section on infectious diseases particularly needs revision, since some of the recommendations made are not accepted by most modern authorities.

Your Hair: Its Health, Beauty and Growth. By Herman Goodman, B.S., M.D. Cloth. $2.95. Pp. 287, with illustrations. Emerson Books, Inc., 251 W. 19th St., New York 11, 1950.

This edition is merely a reprinting of a book issued several years ago. In popular style, the author ranges from a discussion of the cause and treatment of various forms of alopecia to the etiological concepts and therapy of hypertrichosis. In general, the subject matter is presented in a simple manner and provides a review of facts old and new on the subject of hair and hair growth.

Einfuhrung in die pathologische Physiologie. Von Professor Dr. F. Grosse-Brockhoff, Oberarzt an der medizinischen Universitats-Klinik Bonn. Cloth. 39.60 marks. Pp. 645, with 306 illustrations. Springer-Verlag, Reichpietschufer 20, Berlin W. 35, 1950.

As the title indicates, this book is written for medical students rather than for the physician in general practice. The author aims to bring the medical student face to face with the unknowns in the physiology of disease. The numerous illustrations are excellent. The author displays good critical judgment, but in many instances he fails to list (even briefly) the proven facts on which he bases his conclusions, a method essential in elementary medical education.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

ANGINA IN WINTER

To the Editor:—A patient with severe angina largely in winter, or in cold, damp and windy weather, wants to know whether there is a place in this country with weather or climate near ideal for him, an all-year dry, warm and sunny weather, not windy and located at sea level or moderately above it. I think the Pacific Islands might offer such a climate. Would you agree with this? Leopold J. Schwarz, M.D., Wildwood, N. J.

ANSWER.—The combination of ideal climatic conditions mentioned above is practically unobtainable. The dry, sunny areas in the southwest of this country tend to be at moderate altitudes and often windy. There are doubtless favorable places in Southern Arizona and Southern California where the altitude is not great and where there is not much wind. Southern Florida is often helpful to patients with angina pectoris in the winter, but the weather there can also be humid and windy. Possibly some desert areas of Sahara might be suitable, although there again wind storms and remoteness from civilization could be deterrents. The Pacific Islands, including Hawaii, would probably not be suitable. While the climate is equable, the humidity is relatively high and there are winds such as the trade winds of Hawaii. The conditions required may perhaps be met in the Southwest in the region around Yuma, Ariz. (altitude 140 ft.). Other areas of this type include Needles, Calif. (altitude 491 ft.), and Phoenix, Ariz. (altitude 1,100 ft.). They are, however, hot in summer.

BASKETBALL FOLLOWING RHEUMATIC FEVER

To the Editor:—Should a high school boy who has had rheumatic fever be allowed to play basketball three months after an attack, provided there is no evidence of cardiac disease? The rheumatic fever involved the right knee joint and one metacarpophalangeal joint of the left hand. There was only moderate fever during the three weeks' course of the disease. M.D., Minnesota.

ANSWER.—One of the most difficult problems in the management of rheumatic fever is to determine when the active process is at an end and how rapidly the patient should resume normal life. Even if there is no clinical or laboratory evidence of cardiac involvement, the majority of students of rheumatic fever would advocate at least two or three months of bed rest following the onset of an acute rheumatic episode. After this period, the return to full activity should be gradual. It would scarcely seem wise to permit strenuous exercise within three months of the onset of rheumatic fever.

FLUORIDE POISONING

To the Editor:—In the process of reducing aluminum ore, certain fluorine derivatives are given off which are harmful when ingested. In areas where reduction plants are located, these derivatives settle on vegetation. When the vegetation is eaten by cattle, deleterious effects on their teeth are noted. Kindly inform me where I can get literature on this subject, particularly as to the effect of these products on the human body. M.D., New York.

ANSWER.—Exposure that might lead to fluorine or fluoride poisoning is by no means limited to the smelting of ores, nor is ingestion the only avenue of possible damage. The lowest form of chronic poisoning, mottled enamel of teeth, is inaugurated only in children and is due to the imbibition of waters with a natural high content of fluorides. In industry extensive exposure results from the application of fluorides in the founding of aluminum. Some poisoning has arisen from the accidental ingestion of fluorides in pesticides. The chronic form of fluoride poisoning characterized by dense deposits in bones and tendons as revealed in roentgenograms is not known to have occurred in the United States but has been described in European countries. In a few areas, damage, chiefly to cattle, has followed volcanic eruptions. A voluminous literature descriptive of all features of fluorine and fluoride poisoning has accumulated. The newest comprehensive publication with an extensive bibliography is by J. Larner (Toxicological and Metabolic Effects of Fluorine-Containg Compounds, *Indust. Med.* 19:535 [Nov.] 1950).

FREQUENT URINATION

To the Editor:—A 77 year old man with carcinoma of the liver of about five months' duration is having frequency of urination, every one and a half hour to three hours, day and night. The urine, kidneys, ureters and prostate are normal. There are no signs of pressure on the urinary tract. A urologist and about 15 other physicians have seen the patient, but none have given any suggestion as to etiology or treatment. I will be grateful if you can advise in any way. Pains in the abdomen began after a virus infection, diagnosed as hepatitis, last March. In April the diagnosis of carcinoma was made. Later that month he was treated with roentgen rays and sodium pteroyltriglutamate. In about four days the severe pains in the liver disappeared. M.D., New Mexico.

ANSWER.—Frequent urination in the presence of normal urine may have a variety of causes. The data supplied do not permit a categorical diagnosis. Frequent urination may be of two types: first, frequency which implies the passage of small amounts of urine at short intervals with a normal 24 hour urine output; second, polyuria, which implies the passage of normal amounts of urine at short intervals with an abnormally large 24 hour urine output. Repeatedly normal urine specimens must be obtained over a period of weeks before the urine can be safely called normal. In addition, tests of the concentrating power of the kidneys must be done if casual specimens do not occasionally show a specific gravity of 1.020 or more. If there is frequency, the cause probably lies within the lower urinary tract, although neurological disease, psychogenic disturbance and disease in adjacent viscera involving the lower urinary tract must be considered. If there is polyuria, primary renal disease (e. g., renal arteriosclerosis), endocrine disease (e. g., diabetes insipidus, Addison's disease) and psychogenic factors should be considered. It is impossible to discuss here the differential diagnosis completely, but distinction between frequency and polyuria, assurance of the normality of the urine and observation of the renal concentrating power should narrow the field of diagnostic possibilities and indicate the direction for further study.

ESTROGENS FOR CANCER OF BREAST

To the Editor:—A woman aged 40, with two children, had a radical right mastectomy for breast cancer, without metastasis at that time, in January 1948. In 1949 widely diffused bone metastasis developed, and in February 1950 she had a hysterectomy and ovariectomy, to combat the bone metastasis, which had been poorly controlled with roentgen rays and testosterone in massive dose. Great improvement followed the second operation, the bone metastasis showing remarkable recalcification. The patient regained the lost weight and was energetic. The many hard nodules under the scalp shrank and disappeared. However, two subcutaneous nodules on the right hemithorax, below the amputated breast, and a nodule on the right plantar region seem not to be influenced, even by roentgen therapy. Another nodule on the right hemithorax last year was removed surgically and found to be a metastatic one. Testosterone, had to be discontinued because allergy developed. The patient is suffering from menopausal disturbances, chiefly profuse perspiration. I have tried again small doses of testosterone by mouth, with the same intolerance by the patient. She has shown the same intolerance toward progesterone, characterized mostly by temporary reactivation of bone pains. Is it hazardous to use small or large doses of estrogen to control menopause disturbances and, possibly, also influence the subcutaneous nodules? Can I use vitamin E? I will appreciate any help you may extend me. A. A. Bernardo, M.D., Philadelphia.

ANSWER.—The use of estrogen hormones to combat extensive carcinoma of the breast is reserved for women over 60 years of age. However, inasmuch as this patient has been completely castrated for 18 months, it may be that the estrogen in large doses would be of benefit. Certainly, when all other therapy has failed, it should be tried. There is no contraindication to the use of vitamin E, although its value in this situation is to be questioned. The recurrent nodules can be treated with radium application, radon implants or roentgen rays administered by means of a cone, so that the rays could be focused directly to the affected area. There are no radioactive elements known at this time which would be of any greater benefit. Further metastasis is to be expected, as temporary response to endocrine therapy will eventually be followed by recurrence and further spread of the disease, which finally results in death.

EPIDEMIC OF CONJUNCTIVITIS

To the Editor:—There has been an epidemic of a peculiar type of conjunctivitis at one of our junior high schools. Cultures from 13 of 26 eyes were positive for Actinomyces nocardia. A control group of cultures was made from 13 students in that school who had not had this conjunctivitis and 13 students from another school, where there was no epidemic. These were all negative. The three ophthalmologists who have been consulted feel that the symptoms in no way correspond with those described as typical of Actinomyces. There is rarely pus in these eyes; they are moderately red; some have extremely fine granulations along the margin of the lids; there is usually itching, a tight, uncomfortable feeling and sometimes pain. Symptoms respond to medication with sulfonamides but tend to recur if the drops are not used long enough. The epidemic has been in progress for 10 weeks in spite of the fact that pupils with the infection have been excluded, except at first, when they were allowed to return to school if they were receiving medication. About 10 days before the epidemic started some shavings were placed in a pit for jumping purposes. Similar shavings were used simultaneously in two other schools, where there has been no epidemic. The same species of A. nocardia was isolated at two different times from the shavings at this school.

Elizabeth H. Laidlaw, M.D., Tucson, Ariz.

Answer.—Actinomyces nocardia is an exceedingly uncommon but definite cause of several chronic types of keratoconjunctivitis. A variety of clinical pictures have been reported: superficial punctate keratitis, yellowish nodules on the conjunctiva, adherent yellowish white membrane on the palpebral conjunctiva, raised nodules on the surface of the cornea and sclera, chronic conjunctivitis, mucopurulent conjunctivitis, folliculosis with adenitis and bullous keratitis with granulation tissue. Probably the only characteristic ocular involvement caused by Actinomyces is chronic conjunctivitis, almost invariably unilateral, that follows concretions in the lacrymal canaliculi. Removal of the concretions by curettage, mechanical expression and irrigation is followed by complete and rapid recovery.

A. nocardia is usually considered to be a nonpathogenic soil bacterium. Many types of Actinomyces are present in the soil, and it is easily possible for some organisms to enter the eye. The pathogenicity of the entire group of organisms is low, and ordinarily only a small percentage of the population is susceptible to this type of infection. Once the infection is established, treatment is frequently unsuccessful.

If the infection has continued in this group, the following regimen is suggested. The cause must be definitely confirmed, as A. nocardia is usually of such low pathogenicity as to be a highly unlikely causative factor in conjunctivitis involving such a large group. Smears and scrapings should be made of the conjunctiva and eyelid margins. Smears should be stained by Gram's method and examined for fungi and bacteria. Scrapings should be stained by a blood stain such as Wright's or Giemsa's. The scrapings should be examined for bacteria and fungi in the epithelium, for the inclusion bodies of trachoma and inclusion conjunctivitis and the eosinophils of allergic conjunctivitis. Material from both the conjunctiva and the lid margin should be cultured under both aerobic and anaerobic conditions with several different types of mediums. Animal inoculations with A. nocardia are usually not successful.

If A. nocardia is the likeliest cause, the first step in the treatment should be irrigation of the lacrymal sac through both the superior and inferior puncta and complete assurance that there is no source of infection in the lacrymal apparatus. Drugs of choice are penicillin G and sulfadiazine administered systemically in full doses. Locally a 5 per cent sulfadiazine ointment may be of value. One should keep the lid margins free of epithelial debris by cleaning with cotton-tipped applicators.

ANTIBIOTICS EXCRETED IN BREAST MILK

To the Editor:—A mother asks whether there is any objection to her taking aureomycin or other antibiotics while nursing a baby. This mother has relapses of undulant fever, and aureomycin has proved of benefit.

Eugene T. Brunson, M.D., Ganges, Mich.

Answer.—Penicillin is excreted in the breast milk and in therapeutic amounts. Guilbeau and co-workers (Aureomycin in Obstetrics, *J. A. M. A.* 143: 520 [June 10] 1950) attempted to determine aureomycin levels in breast milk. In eight nursing women with a daily oral intake of 2 to 3 Gm. of aureomycin, it was found that the aureomycin level in the breast milk either equaled the level in maternal serum or was 12 to 25 per cent lower than in the serum. While such amounts of aureomycin might not harm the nursing infant, one wonders about the advisability of allowing a mother with chronic undulant fever to nurse her baby. If undulant fever can be transmitted through the milk of other mammals, is it not possible that it may be transmitted through human breast milk?

CHIGGERS

To the Editor:—I have had an attack of intense itching following trips to the country. The lesions were diagnosed as due to chiggers. Is there anything that can be done to prevent the bite of these mites? Kindly suggest a local application to relieve the itching and hasten involution of the lesions.

M.D., Pennsylvania.

Answer.—The secretions of the larvae of Trombicula cause dermatitis. The larvae themselves are found on the skin for only a day or two. Before the chiggers have dropped off the skin, treatment consists of a hot bath with soap and water, followed by the application of a 5 to 10 per cent sulfur ointment containing 1 per cent phenol. Accompanying pyogenic infections are treated by the use of appropriate antimicrobial agents. Mite infestations may be prevented by the use of repellents, the formula of one being as follows:

Dimethylphthalate	6 parts
Indalone (butyl mesityl oxi-oxalate)	2 parts
Rutgers *612* (*2-ethylhexanediol-1,3*)	2 parts

These are mixed mechanically. One-half teaspoonful is poured into the palm of the hand; the hands are rubbed together, and a thin layer of the mixture is applied to the face, neck, ears, hands and wrists (but not into the eyes or mouth). The application on the skin is effective for two to four hours. In addition to mites, it repels immature ticks, mosquitoes, gnats and flies. The application on garments is more lasting. It is sprayed or applied by hand and remains effective for a number of days. The impregnation of clothes with dimethylphthalate lasts still longer. They are immersed in a solution of 5 per cent dimethylphthalate and 2 per cent soap and dried. Clothes remain repellent for a month or two even though laundered.

SHOULDER PAIN FOLLOWING CORONARY ATTACK

To the Editor:—I am a victim of coronary heart disease, having had a posterior infarct in 1943. Since then I have experienced excruciating pain in the left shoulder girdle for six to 12 weeks at a time. At first the pain was ascribed to sequels of the coronary episode. In the last two years the fifth, sixth and seventh cervical vertebrae show definite arthritic changes. For some time I have taken 1/40 to 1/20 grain (1.5 to 3 mg.) of dihydromorphinone hydrochloride three times a day with relief. My heart does fairly well. I have some definite anginal attacks relieved by one or two 1/150 grain (0.40 mg.) glyceryl trinitrate tablets. The nitrites have never relieved the shoulder girdle pain. I am 61 years old and in apparently good physical condition. I have never had an acute failure episode. I am now advised that dihydromorphinone hydrochloride is strongly contraindicated. What are the contraindications to this drug in particular and narcotics in general in my case?

M.D., Kansas

Answer.—If the shoulder pain began soon after the myocardial infarction, it is likely that it was then due to reflex dystrophy initiated by the heart lesion. This rheumatic complication, however, seldom lasts as a painful condition more than six to 12 months, after which stiffness and muscular atrophy at the shoulder and hand oftentimes may remain. If severe pain persists or has become worse through the several years subsequent to the myocardial infarction and especially if roentgenographic evidence of arthritis exists in the cervical vertebrae, it is most likely that the left shoulder pain currently present is due to the spinal lesion. Severe shoulder pain resulting from disease in the cervical part of the spine usually is due to nerve root pressure and results from extensive degeneration of a cervical disk or to arthritic spurs encroaching on the foramen, or a combination of these abnormalities.

Accurate diagnosis is of first importance. When these conditions obtain, there may also be neck pain, limited cervical motion, crepitation and aggravation of shoulder pain by cervical motion. Roentgenograms will demonstrate the bone and intervertebral disk lesions, and oblique views of the cervical spine should show any encroachment on the foraminal space. Nerve root pressure often also causes paresthesia along the distribution of the nerve and sometimes reflex and/or pinpoint sensation changes.

If the condition is not too severe, usually the use of cervical traction properly applied, a Thomas collar, proper physical therapy and non-narcotic analgesia give good results. If severe localized pain occurs, injection of procaine hydrochloride at the nerve root or site of initiation of pain may be helpful although of only temporary value. If these measures fail and if pressure on a nerve root persists, sometimes it is necessary to relieve the pressure surgically. Continued use of narcotics for relief, rather than relieve the cause for the pain, is unwise. The warning against continued use of dihydromorphinone hydrochloride was undoubtedly given on this basis. The fact that the heart has continued well compensated indicates good healing of the infarction, so that it behooves the sufferer to find out the cause for the pain and correct it if possible. It is wise to have the expert help of a specialist capable in this field; consultation with orthopedist, rheumatologist, neurosurgeon and internist is advised.

SWELLING OF THE CHEEK AND PREMENSTRUAL TENSION

To the Editor:—A 22 year old woman complains of unilateral swelling of the cheek eight to 10 days after each menses. The condition has persisted about eight months. The swelling is nonpainful, lasts three days and starts in the region of the malar eminence. During the course of the three days the swelling spreads down over the cheek proper and finally disappears. There is no associated discoloration of the face or other signs of local pathology. Two years ago she underwent a Baldy-Webster suspension, tubal ligation and appendectomy. Four years ago the patient had a normal full term pregnancy, and to date her periods have been normal. Results of physical examination and routine laboratory tests were essentially negative. The patient was placed on a salt-free diet, 10 grains (0.6 Gm.) of ammonium chloride three times a day and 20,000 units of estrogens every three days for five doses. . She was not seen until the swelling recurred, three days prior to her next period. The swelling had completely abated by the first day of the menses. She received the same treatment the following month, and, while the swelling recurred again just prior to the period, it lasted only two days and was not as pronounced. During the third month under observation she was given 10 mg. of testosterone propionate twice daily for the first 15 days of the cycle. The patient had no swelling during that cycle. What would be the most likely diagnosis?

M.D., Ohio.

Answer.—The condition is part of the syndrome known as premenstrual tension. In this syndrome all types of bizzare swellings may occur in different parts of the body. The etiology of premenstrual tension has been stated to be an increased amount of estrogen in the blood before the onset of menstruation or an insufficient amount of progesterone secretion at this time. Greenhill and Freed (*Endocrinology* 26:529 [March] 1940) postulated a single mechanism for the development of the variety of changes which occur. Premenstrual distress is, according to this hypothesis, the result of sodium ion retention by the different tissues of the body under the influence of the ovarian steroids. This retention of sodium ion is associated with an increase in extracellular fluid in the tissues, which may be microscopic in amount or may develop into gross edema. Under this theory, the neurological symptoms result from edema of the nervous system, probably the brain, the nausea and bloating of the abdomen result from edema of the gut and the other symptoms arise from the specific organs affected.

On the basis of this hypothesis one could administer ammonium chloride by mouth, a salt frequently used for removal of edema fluid in cardiac and renal disturbances, although not in the usual diuretic doses. The patient is advised to refrain from adding table salt to food during the last two weeks of the menstrual cycle. During this time she is given 0.6 Gm. of ammonium chloride three times a day.

DIABETIC SUGAR FREE WHEN TAKING ALCOHOL

To the Editor:—A man aged 30 has had diabetes mellitus for five years. His blood sugar varies between 120 and 174 mg. per 100 cc. He is taking 12 units of insulin (80 units per cubic centimeter) twice daily. Sugar in the urine may be 4 plus on one test and in 20 to 30 minutes may become negative, and vice versa. This man drinks moderately, four or five drinks per day, and when he does this the urine becomes negative for sugar. During the time he is taking alcohol he is very nervous. Why is he devoid of sugar at the time he is taking alcohol?

Frank J. Burian, M.D., Williamson, W. Va.

Answer.—It is likely that the patient has no sugar in the urine while taking alcohol because of the reduced intake of food during such times. It is not possible to outline treatment properly without knowing more about this man. Information is needed regarding his weight, height, occupation, food habits and level of intelligence. However, the following general principles are suggested: 1. The diet should be reasonably constant from day to day and should allow daily 150 to 200 Gm. of carbohydrate, at least 1 Gm. of protein per kilogram of body weight and fat to maintain body weight at a satisfactory level. 2. Protamine zinc insulin should be given daily before breakfast, with the dose gaged so that the fasting blood sugar is in general in the range of 120 to 140 mg. per 100 cc. If, having attained this, the urine just before the noon meal regularly contains sugar, a dose of regular or crystalline insulin should be given in the morning before breakfast by separate injection at the same time that the dose of protamine zinc insulin is given. The dose of clear insulin should be that amount which will in general allow the urine just before the noon meal to be sugar free or nearly so without causing insulin reactions in the forenoon. According to this plan, all insulin would be taken before breakfast. With a patient of this type, it would be best at the start to give the two varieties of insulin by separate injections, reserving until later the possibility of insulin mixtures. 3. Complete abstinence from alcohol should be insisted on.

LIQUID PETROLATUM IN PERITONEAL CAVITY

To the Editor:—A woman aged 45 has had a septic temperature for three months. Pelvic examination revealed a mass in the lower left abdominal quadrant which was thought to be a tubo-ovarian abscess. A laparotomy was performed and revealed a generalized nodular process throughout the entire peritoneal cavity with considerable thickening of the terminal ileum. Although no primary site was found, the thought was that this patient had a generalized inflammatory carcinomatosis of the peritoneal cavity. However, the pathologist did not find cancer; the report stated that the excised tissue was a generalized granulomatous reaction due to a foreign body. A report of a laparotomy done 17 years previously reveals that 14 ounces of liquid petrolatum were injected into the peritoneal cavity. What treatment has been instituted in patients who have had liquid petrolatum injected into the peritoneal cavity? There were no free droplets of oil in the peritoneal cavity.

M.D., Pennsylvania.

Answer.—There is no specific treatment for diffuse granulomas of the type which you have observed following the injection of liquid petrolatum into the peritoneal cavity, particularly since no free oil was found. It is barely possible that some of the bacterial enzymes which are being investigated at present might ultimately be useful in such conditions, but it is too early to advise their use in a patient such as the one described. The chief problem in this patient will probably be relief of pain and the treatment or prevention of intestinal obstruction resulting from adhesions.

CALCIUM

To the Editor:—When is it advisable to give calcium intramuscularly or intravenously? Is such administration advisable in gastrointestinal diseases, especially those associated with diarrhea? Is administration of calcium, either orally or parenterally, indicated in tuberculosis? Is calcium useful as a so-called general tonic? Is calcium advisable in cases of malnutrition due to illness or to a constantly inadequate diet?

William L. Nute, M.D., Talas, Kayseri, Turkey.

Answer.—There is widespread unwarranted use of calcium compounds given parenterally. This practice is promoted by certain manufacturers of calcium compounds prepared for this purpose. The indications for use of calcium compounds are well stated in "New and Nonofficial Remedies," as follows: "Calcium salts are specific in the treatment of hypocalcemic tetany. Vitamin D or parathyroid hormone may also be indicated according to the etiology involved. In severe tetany, parenteral administration, preferably intravenous, is indicated to bring symptoms under rapid control. Latent tetany or mild symptoms may be controlled by oral medication. When calcium is deficient, hydrochloric acid may increase its absorption."

There is little or no ground for parenteral administration of calcium salts in gastrointestinal diseases, whether or not associated with diarrhea. The administration of calcium in tuberculosis is empirical and is not supported by adequate evidence. There is no reason to believe that calcium serves any useful purpose as a "general tonic." The administration of calcium may be indicated in cases of true calcium deficiencies, such as occurred in large numbers in the middle European countries during and after World War I. In general a remedial diet is preferable to the administration of calcium compounds.

STAIN FOR PROSTATIC SMEARS

To the Editor:—Please describe the best method of fixing and staining prostatic smears.

W. F. Bell, M.D., Rutherford, Tenn.

Answer.—The following formula is recommended for the purpose of fixing and staining prostatic smears:

A. Prepare thin smears from prostatic secretions. Do not allow to dry.

B. Fixation: Place smears while still wet in ether alcohol 20 minutes to one-half hour (equal parts 50 per cent ether, and 95 per cent alcohol).

C. Stain:

1. Place slide for two minutes in Harris' hemotoxylin diluted with an equal part of distilled water.
2. Rinse in tap water.
3. Dip three times in a 0.5 per cent solution of hydrochloric acid.
4. Wash in running water for 10 minutes.
5. Place slide in saturated solution of lithium carbonate for one-half minute.
6. Wash slide in running water for 10 minutes.
7. Dip slide in dilute eosin.
8. Rinse in tap water.
9. Dehydrate in three changes of 95 per cent alcohol and two changes of absolute alcohol.
10. Clear in two changes of carbolxylene.
11. Place in xylene for five minutes. Mount in permount or Canada balsam.

SCHIZOPHRENIA

To the Editor:—Will the following conditions contribute to the development of schizophrenia? A woman in her late thirties is confined to an institution because of schizophrenia. Her mother was much disturbed and in almost a constant state of unrest during the prenatal state. An older sister of the mother, a religious fanatic, insisted that her mother should refuse sexual relations with her husband. The patient as a young child heard much of the intrigue to separate her parents and continued to hear this up to the time when her parents were separated and divorced, when the patient was about 12 years of age. This patient was in a state of bewilderment and dismay and kept asking over and over again why this had to be. When she overheard the scheming to ruin her father's business and bring him into disrepute, she became more bewildered. The patient was married in her twenties and has two boys and a daughter. She takes no interest in her home and asks her husband for a divorce.

M.D., Indiana.

ANSWER.—In answer to the question of the possibility of prenatal influences having to bear on the development of a schizophrenic reaction, there appears to be no scientific evidence to substantiate such a premise. A significant family factor is the personality make-up of the maternal sister, who is described as a religious fanatic who insisted that the patient's mother refuse sexual relations with her husband. One wonders about the mental state of this aunt, whether she too may not have had some aberrant psychiatric traits. The cause of schizophrenia is not known, but the incidence of this mental illness in disturbed or broken homes is much greater than it is in normal homes. While the parental quarreling which resulted in the patient's being confused emotionally may have served to precipitate the schizophrenic reaction, it probably was not the actual cause. The parents were separated and divorced when the patient was 12; yet she was able to carry on to her twenties, marry and have three children. Her breakdown in the thirties is the usual period of breakdown for a patient suffering from a paranoid type of schizophrenia.

GREENISH DISCHARGE FROM BREASTS

To the Editor:—A patient with congestion of both breasts can express a greenish serous discharge from them. Other abnormalities were not found on complete physical examination. She is 35 years old with menses every 28 days, lasting one or two days, with slight midmenstrual leukorrhea. She has no children and for two years has tried to become pregnant. Advice as to treatment would be appreciated. Treatment with estrogen, dihydrostreptomycin, testosterone and progesterone has failed to reduce the congestion of the breast or the discharge from the nipple.

M.D., Connecticut.

ANSWER.—This patient presents several problems, namely, the congested breast, the discharge from the nipple and sterility. It is not unusual to find metaplasia of the breast in women of this age who have not conceived. It would be wise, therefore, to subject this woman to thorough investigation for the cause of her infertility. The outline of such an investigation can be found in any standard obstetrics and gynecology textbook. If she were to conceive, the breast, after lactation, would probably return to normal. In the meantime a great deal of relief can be afforded the patient by placing her on a salt-free diet and giving her large doses of ammonium chloride, 1 Gm. four times daily, until the breasts have softened. The discharge is probably not an infection, but this could be readily determined by examination of some of the exudate after proper preparation of the nipple before expression of secretion. Greenish serous discharge is frequently present in chronic cystic mastitis and causes the development of cysts, which are found on tissue examination. In all probability the discharge will respond to the treatment for the relief of the congestion. Further endocrine therapy should not be attempted, as it might aggravate the condition.

INFECTIOUS MONONUCLEOSIS AND BELL'S PALSY

To the Editor:—A 17 year old white girl complained of headache, fever, severe sore throat and lymphadenopathy of the cervical, axillary and inguinal areas. The spleen was palpable. Infectious mononucleosis was suspected, and a peripheral blood smear confirmed the suspicion. Her throat remained sore, and a membrane developed about two weeks after onset of the illness. A throat smear revealed only the usual organisms of the nasopharynx. Taste sensation was normal on the anterior surface of the tongue. The patient improved and was ambulatory in the third week; then peripheral Bell's palsy developed. What is the incidence of this neurological complication in mononucleosis? Could it be attributed to the prolonged sore throat in this case?

Paul A. Newton, M.D., Oakland, Calif.

ANSWER.—Central nervous system involvement in infectious mononucleosis is common. Serous meningitis, encephalitis, encephalomyelitis and isolated or diffuse upper and lower motor neuron lesions have been described. There are reports of spinal fluid changes, such as pleocytosis, increased pressure and increased protein in as high as 50 to 90 per cent of some series. Neurological changes most often occur two to four weeks after the onset of the disease; in occasional cases these have preceded adenopathy and lymphocytosis by as long as two weeks. Recovery from the neurological aspects of infectious mononucleosis is usually complete in one to four weeks, but rare instances of permanent damage have been observed. Five cases of facial palsy are found in the literature. In one of the first two, described by Gsell (1937), there was bilateral involvement. In another case, described by Zohman (1942) the disease was associated with diffuse lower motor neuron lesions. It seems probable that the palsy in the patient described is the direct result of the "neurotoxic" properties of the infectious mononucleosis virus rather than direct extension of the inflammation from the throat

SUDDEN SENSATION OF ROTATION OF OBJECTS

To the Editor:—A 56 year old man suffered suddenly, for 10 seconds, the sensation of rotation (with 45 degrees) of all objects, but only with the image of the left eye. This was accompanied with vertigo and was followed during the whole day by headache and tiredness. There were no other symptoms. All his life he had tendency to vasomotor lability. He had a positive skin reaction to brucellin and rheumatoid pains which improved with injections of brucellin. For years he had experienced attacks of mild colitis, probably of amebic origin, which had the usual treatment. Blood pressure is 140/80. General and neurological examinations do not reveal abnormalities. Wassermann and Kahn reaction of the blood were negative (one year ago). The patient smoked moderately some years ago but does not smoke at present. He takes alcoholic beverages in moderate amounts.

D. A. Hachenburg, M.D., Ecuador.

ANSWER.—Transitory rotation sensation affecting objects seen with the left eye and vertigo and headache lasting for only the one day suggest a temporary pressure inside of the right cortex; this could well be on a vascular basis, as is widely believed about similar symptoms in migraine. If it really is of the same nature as migraine, one must hesitate to draw conclusions as to the efficacy of any treatment of accompanying conditions, no matter how definite they are and/or how helpful the treatment of them has been. The symptoms could, of course, be the earliest evidence of aneurysmal pressure or brain tumor, despite the absence of significant changes.

PAIN IN FOOT

To the Editor:—Six months ago tests showed that my wife had a blood sugar level of 290 mg. per 100 cc. with extreme pain in the right leg and foot. The sugar value became normal in two days with insulin therapy. The foot became ash gray, and gangrene threatened. However, after three weeks and a sympathectomy the foot responded. Now, after six months, the foot looks well but occasional edema develops and lasts a few days. While the pain has decidedly lessened, especially during the daytime, there still remain paroxysms of pain during the night, and sleep is induced with meperidine hydrochloride. An average of 150 mg is required each night. Two months ago about 250 mg. were necessary during the night. Is there anything else available to rid this foot of pain? Multiple vitamin preparations are being used without effect. Is soaking the foot in moderately heated water objectionable?

M.D., Pennsylvania

ANSWER.—The lancinating pain at night may well be due to a diabetic neuropathy; tendon reflexes may be absent, and studies of sensation and vibratory sense are in order. Biweekly injections of vitamin B_{12} (15 gammas for each dose) have shown promise. Unless the circulation deteriorates, the nerve lesion may gradually enter a painless stage. Narcotics should be avoided at all costs. Soaking in tepid water is not objectionable but is usually without benefit and may macerate the skin

ONE SHORT LIMB

To the Editor:—A high school girl, 15½ years, weight 122 pounds, height 5 feet 4 inches, has slight curvature of the spine and a limb 1¾ inches short. The radiologist states that she has attained full growth and that there is no tuberculosis or other disease of the bones. The orthopedist has advised shortening the longer limb, which he states will entail six months in a cast and two months on crutches. This would prevent the girl's going to school this fall and graduating with her class. Would a lift overcome her condition for the present?

James R. Stringham, M.D., Cheboygan, Mich.

ANSWER.—There is no clue as to the cause of the inequality of leg length. The girl has waited too long already, but she can continue to temporize if her pelvis is properly balanced. This can be determined best by examination of the levels of the gluteal creases while she stands. This method is more accurate than any form of tape measure examination. In regard to equalization by surgical treatment, she will have to resign herself to delaying either part of her education or her vacation. She should try a platform shoe on one foot and a nonplatform shoe on the other. If she wears high heels she should add 1 inch on the short side and take ¾ inch off the normal side. If she wears low heels, she should add 1½ inches to the short side. The "make" of shoe is not as important as the size and shape. The shoe should look like her foot and have the same dimensions

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 144, No. 16
CHICAGO, ILLINOIS
COPYRIGHT, 1950, BY AMERICAN MEDICAL ASSOCIATION
DECEMBER 16, 1950

EFFECT OF CORTISONE AND PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) ON RHEUMATIC DISEASES

PHILIP S. HENCH, M D
CHARLES H. SLOCUMB, M D
HOWARD F. POLLEY, M D
and
EDWARD C. KENDALL, Ph D
Rochester, Minn

The antirheumatic effects of the adrenal cortical hormone, cortisone, and of the pituitary adrenocorticotropic hormone (ACTH; corticotropin) have been demonstrated by many investigators within the past year. These beneficial effects may be produced especially on rheumatoid arthritis and acute rheumatic fever but also on several other articular conditions such as the acute arthritis of gout, the arthritis of disseminated lupus erythematosus, of psoriasis, of ulcerative colitis and to a limited extent on the arthritis of tuberculosis and in certain cases of primary osteoarthritis. In general the relief lasts only during the period of hormonal administration.

GENERAL RESULTS IN RHEUMATOID ARTHRITIS

Varying degrees of improvement have been obtained in practically all cases of active rheumatoid arthritis, rheumatoid spondylitis and Still's disease (juvenile rheumatoid arthritis) in which cortisone and pituitary adrenocorticotropic hormone have been used. Most patients, even those with severe but reversible disease, have promptly obtained decided relief. Other patients whose chronic or severe disease had produced irreversible anatomic changes have been less notably benefited. It appears that in the cases in which disappointing results were obtained small and relatively ineffective doses sometimes were used in an attempt to reduce the expense of the rather costly hormones; occasionally relatively inactive nonstandardized preparations of pituitary adrenocorticotropic hormone were used, and in a few cases the patients' adrenal glands were found (by use of the eosinopenic test of Thorn) to be poorly responsive to pituitary adrenocorticotropic hormone and therefore unable to produce sufficient amounts of endogenous cortisone to provide a satisfactory result.

In our first series of cases [1] of rheumatoid arthritis, in all of which the disease was severe, the antirheumatic effect was very marked (almost complete relief) in 12 (57 per cent) of the 21 cases in which cortisone was given, marked (75 to 90 per cent relief) in 8 (38 per cent) and moderate in 1 (5 per cent). The antirheumatic effect was very marked in 4 (67 per cent) of 6 cases in which pituitary adrenocorticotropic hormone was given and marked in the remaining 2 (33 per cent).

GENERAL PLAN OF DOSAGE

Cortisone.—Cortisone [2] was given as a crystalline suspension injected intramuscularly. The initial day's dose was 100 mg. in our first cases and 300 mg. (150 mg. into each buttock) in later cases. Thereafter 100 mg. was the usual daily dose. A single daily dose of 100 mg. appeared to be as effective as 50 mg. twice a day. On special occasions 150 or 200 mg. was given daily for two to five weeks. In our cases of severe rheumatoid arthritis daily doses of 75 mg. were usually incompletely effective; smaller doses were inadequate or totally ineffective. It recently has been observed that mild or moderately severe rheumatoid arthritis usually can be controlled satisfactorily by giving full doses until the disease is largely suppressed and thereafter by giving 35 to 65 mg. a day or 100 mg. on three days a week, such as Monday, Wednesday and Friday.[3]

Pituitary Adrenocorticotropic Hormone.—Daily doses of pituitary adrenocorticotropic hormone,[4] prepared as a fluffy powder which is dissolved in saline solution and given intramuscularly, in our cases were usually 100 mg., occasionally 45 to 140 mg. Since the drug is rapidly absorbed and utilized by the body the total daily dose must be given in divided amounts every six or eight hours. After the initial full suppressive doses have been given daily for two or three weeks, or until symptoms are largely controlled, smaller daily doses may maintain the improvement.

Recent preparations of the drug have been about twice as potent as cortisone, milligram for milligram; thus the antirheumatic effect of about 40 mg. of pituitary adrenocorticotropic hormone is about equal to that of 100 mg. of cortisone. In general, early suppressive

---

From the Division of Medicine, Mayo Clinic (Drs Hench, Slocumb and Polley) and from the Division of Biochemistry, Mayo Foundation (Dr. Kendall).

Read in the Symposium on ACTH and Cortisone before the Section on Experimental Medicine and Therapeutics at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950

[1] Hench, P. S; Kendall, E. C; Slocumb, C. H, and Polley, H. F. Effects of Cortisone Acetate and Pituitary ACTH on Rheumatoid Arthritis, Rheumatic Fever and Certain Other Conditions: A Study in Clinical Physiology, Arch. Int. Med. **85**: 545-666 (April) 1950.

[2] Supplied by Drs Randolph Major, vice president, and James Carlisle, medical director, Merck & Company, Inc.

[3] (*a*) Boland, E. W.: The Effects of Cortisone and Adrenocorticotropic Hormone (ACTH) on Certain Rheumatic Diseases, California Med **72**: 405-414 (June) 1950. (*b*) Boland, E W., and Headley, N. E.: Management of Rheumatoid Arthritis with Smaller (Maintenance) Doses of Cortisone Acetate, J. A. M. A. **144**: 365-372 (Sept. 30) 1950. (*c*) Freyberg, R. H.: Effects of Cortisone and ACTH in Rheumatoid Arthritis, Bull. New York Acad. Med. **26**: 206-211 (April) 1950

[4] Supplied by Dr. John R Mote, medical director, the Armour Laboratories.

doses of the former drug would be about 40 to 60 mg. daily; maintenance doses, about 15 to 20 mg. daily. In the light of further experience it seems that the maintenance doses of the two hormonal agents used in our first series of cases were sometimes larger than necessary. The doses of the two hormones must be individualized.

PATTERN OF CLINICAL RELIEF

Clinical Response.—The initial pattern of clinical improvement was characteristic. Lessening of subjective symptoms began usually within two or three days, sometimes within a few hours after the first injection of one or the other hormone. Within a few days there were appreciable reduction of muscular and articular stiffness, lessening of articular tenderness, aching and pain on motion, and usually reduction of articular swelling. In general, within the first week stiffness, aching and pain on motion were greatly relieved; within the second week articular tenderness was reduced or disappeared and articular swellings began to diminish.

Thereafter, the use of either of the hormones being continued, further improvement was more gradual, sometimes being interrupted by minor flares, "arthritis in miniature." The maximal over-all improvement sometimes developed after two or three months of administration of the hormones.

Patients often noted, coincident with the improvement of joints and muscles, increased strength, a sense of lessened toxemia, improved nutrition with increased appetite and nutritional gains in weight, and euphoria or a sense of well-being which often expressed itself by increased mental and physical energy. Fever, if present, usually disappeared. Rheumatoid nodules and enlarged lymph nodes sometimes diminished in size; a few small ones seemed to disappear. Flexion contractures usually diminished; if they were not too long established they often disappeared, frequently within three weeks.

Biochemical and Metabolic Effects.—Sedimentation rates were reduced, often to normal values. The concentrations of hemoglobin of anemic arthritics often increased, as did erythrocyte counts. Total leukocyte counts usually increased slightly. Eosinophil counts were decidedly reduced by pituitary adrenocorticotropic hormone, but were not altered consistently by cortisone. When hyperglobulinemia was present, reduction of serum globulin usually occurred and albumin-globulin ratios tended to return toward normal. Urinary 17-ketosteroids were reduced by cortisone (100 mg. doses) and decidedly increased by pituitary adrenocorticotropic hormone. The excretion of corticosteroids in urine was increased by either hormone.

Daily doses of 100 mg. of cortisone usually did not produce significant alteration in the concentrations of electrolytes in blood or tissues, but the administration of 200 mg. of the drug daily for two weeks or more sometimes produced an increased excretion of potassium and chlorides with a resultant hypopotassemic, hypochloremic alkalosis.[5]

Histological Changes.—Biopsy of synovial tissues removed before and at various times during the use of either of the hormones indicated that synovial inflammation was reduced thereby. Histological improvement was mild, moderate or pronounced, depending on how long the hormones were given and on the patient's individual response to them. The synovial tissues, though practically always improved, were not fully restored to normal. Improvement consisted of reduction in the cellular reaction with decreased number of plasma cells and lymphocytes, reduction of papillary tufting, reduction or absence of deposition of fibrin, lessened edema, and evidence of fibrous healing.

WITHDRAWAL OF THE HORMONES

When the use of cortisone or pituitary adrenocorticotropic hormone was discontinued, rheumatic activity returned rather quickly in about 75 per cent of our cases, but in about one fourth of the cases the relapses were delayed for some months. These will be reported in the section on "Optimal After-Effects."

SIDE EFFECTS OF THE HORMONES

Incidence.—These potent hormones are capable of affecting many bodily functions and many tissues other than those of joints and muscles. Some of the results are desirable but others are not. About 40 per cent of our first group of patients had no significant side effects; these patients received cortisone or pituitary adrenocorticotropic hormone for three weeks to four and a half months. Mild side effects such as mild acneform eruption, mild hypertrichosis, rounding of the face or mild irritability developed among 35 per cent of the patients who received one of the hormones continuously or almost continuously for 11 days to seven months. More disturbing side effects developed in the remaining 25 per cent during the administration of one of the hormones 12 to 187 days.

The undesirable effects usually developed in patients who received the hormones in what we now regard as high doses (200 mg. of cortisone or 100 mg. of pituitary adrenocorticotropic hormone daily) or received smaller doses, usually 100 mg. of cortisone daily, for relatively long periods. Individual tolerance also played a role, and men tolerated the two hormones better than women, especially adolescent or menopausal females.

Types.—The commoner side effects consisted of minor alterations of psyche (euphoria, mild nervousness and restless energy) and certain transient paresthesias or somatic symptoms resembling those considered functional. The paresthesias and somatic symptoms may have resulted from transient vasomotor changes or transient alterations in tissue fluids and electrolytes. Some rounding of the face was encountered not infrequently. Occasionally mild hypertrichosis, transient decrease of libido or some muscular weakness and lassitude developed; the last two were sometimes associated with hypopotassemic hypochloremic alkalosis, sometimes not.

These hormones may induce retention of salt and water indicated by sudden gains in weight with or without visible edema. Cortisone appears to possess this property less than does pituitary adrenocorticotropic hormone; this may or may not be a matter of relative dosage. When significant retention occurred, it usually developed early in the course of hormonal usage. Sometimes some degree of fluid retention persisted as long as the hormones were given, but more often an initial retention was transient and soon disappeared even though dosage was unchanged. Two patients who received cortisone had acneform eruption or folliculitis. Amenorrhea, red striae over thighs and increased retrocervical fat (buffalo hump) each developed in 1 case.

---

[5] Sprague, R. G.; Power, M. H.; Mason, H. L.; Albert, A.; Mathieson, D. R.; Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Observations on the Physiologic Effects of Cortisone and ACTH in Man, Arch. Int. Med. 85: 199-258 (Feb.) 1950.

Although these hormones, especially pituitary adrenocorticotropic hormone, may notably increase the blood pressure of patients with hypertension, renal disease or conditions associated with renal lesions (for example, disseminated lupus erythematosus), significant increases of blood pressure did not develop in any of our rheumatoid patients.

Exceedingly large doses of either hormone may induce hyperglycemia and glycosuria in rats. These hormones, in certain doses and under certain conditions, may temporarily impair carbohydrate tolerance. It would appear, however, that either hormone, given in the dose range used in our cases to rheumatoid patients without latent or frank diabetes, does not reduce carbohydrate tolerance to a clinically significant degree. Whatever impairment of carbohydrate tolerance may have resulted from cortisone therapy in our patients was slight. During the use of cortisone abnormal sugar tolerance tests were noted in 5 cases, but in none of our cases did significant glycosuria or fasting hyperglycemia develop. Diabetes and rheumatoid arthritis seldom coexist, but for rheumatic or nonrheumatic patients with latent or frank diabetes these hormones should be expected to induce more pronounced reduction of carbohydrate tolerance. Such a case, that of a diabetic patient with rheumatoid arthritis, was recently reported.[3b]

One of the more interesting effects of these hormones is that on the psyche of rheumatic or nonrheumatic (nonpsychotic) patients. Rome and Braceland[6] have described four categories which encompass the range of psychologic response which attends this treatment. In grade 1 are included those patients who respond to the symptomatic relief with a feeling of well-being, a sense of increased physical and psychological capacity for constructive work which is proportionate to the subjective and objective changes produced. Several of our patients with rheumatoid arthritis may be placed in this category. A response, grade 2, differs only in its quantitative aspects. The thinking and behavioral processes are more accelerated, the amplitude of mood change is greater, and it is evident grossly that these patients are stimulated. Such responses were experienced by several of our rheumatoid patients. A grade 3 response is prone to develop in those nonrheumatic or rheumatic patients whose personality appraisals reveal evidence of previous and severe psychologic conflict. Their response to either hormone is descriptively similar to their past response to environmental stress of different sorts. Patients with cyclothymic personalities experienced mild hypomania or mild depressions, or both, whereas the obsessive person tended to have phobia states and other ruminative preoccupations. We have seen such a reaction by only 1 rheumatoid patient, a woman who received 100 mg. of cortisone daily for 187 days; after about five months changes in mood and then depression developed. These disappeared rather quickly after the use of cortisone was discontinued.

A grade 4 response is a relatively rare sequel. It has not been encountered in our cases of either rheumatoid arthritis or rheumatic fever. It comprises overtly psychotic responses characterized by delusionary thinking, hallucinations, confusion, mood appropriate to the content of thought and an acceleration in the stream of mental productivity. It is of brief duration, and after the discontinuation of hormonal therapy the grossly psychotic symptoms and signs subside within two weeks. Again there is evidence that the most prominent factor in the determination of this response is the patient's prepsychotic personality.

In summary, the physical, biochemical and metabolic changes which these hormones induce constitute, according to Rome and Braceland, a radical change in the integration of the entire organism. This change assumes the proportions of a stress comparable to the more usual physical and environmental stresses which provoke these same kinds of psychologic reactions in equally vulnerable persons. How a given rheumatic or nonrheumatic patient may react psychologically to one of the hormones can be found in an appraisal of the manner in which he has adjusted previously to other stress situations, such as severe fever, acute or chronic illness, financial, domestic or personal difficulties. Rheumatoid patients seldom have psychotic reactions as a result of the pains, frustration, economic insecurity, fear of dependency and therapeutic adventures which their disease entails. Hence, one would hardly expect a grade 4 reaction to the "stress" provided by the use of these hormones. Although grade 4 reactions have been observed in 1 of our cases of severe psoriasis and psoriatic arthritis and in 3 of severe disseminated lupus, such reactions have not been encountered so far among our cases of rheumatoid arthritis.

Posthormonal (Withdrawal) Phenomena.—In several of our patients about two or three weeks after withdrawal of hormones muscular weakness and fatigue developed, lasted two or more weeks and then disappeared. In these cases the use of cortisone or of pituitary adrenocorticotropic hormone had been discontinued abruptly without tapering off the doses. Temporary reduction of function of the adrenal cortex was considered a possible cause.

Theoretical Possibilities.—Repeated injections of pituitary adrenocorticotropic hormone produce adrenal hypertrophy, and repeated injections of cortisone produce adrenal atrophy. Hence it has been suggested that the stimulation of adrenal glands by the former drug or the inhibitive effect of exogenous cortisone on the adrenals beyond a certain limit might lead to a temporary or to a more or less permanent exhaustion of the adrenal cortex which could be serious in the face of subsequent stress. Further experience will determine the likelihood of such possibilities. But the known recuperative powers of adrenal glands which have been atrophic for years in consequence of longstanding (pituitary or adrenal) Cushing's disease permit one to conjecture that the prolonged use of exogenous pituitary adrenocorticotropic hormone or cortisone, if given in amounts that can be shown to be not too excessive physiologically, will not induce irreversible clinicopathological consequences.

Reversibility and Control of Side Effects.—All the reported side effects observed to date by us and others have been transient and reversible. In most instances the reversibility has developed rapidly as soon as the doses were reduced in amount or discontinued. Control of side effects will be discussed later in this paper.

USE OF HORMONES IN OTHER RHEUMATIC AND ARTICULAR CONDITIONS

For reasons stated elsewhere[1] we have given cortisone or pituitary adrenocorticotropic hormone to patients who had other rheumatic and articular conditions besides rheumatoid arthritis.

---

[6] Rome, H. P., and Braceland, F. J.: Use of Cortisone and ACTH in Certain Diseases: Psychiatric Aspects, Proc. Staff Meet., Mayo Clin. 25:495 497 (Aug. 16) 1950.

Acute Rheumatic Fever.—With our colleagues, Drs. Barnes and Smith,[7] we have given cortisone or pituitary adrenocorticotropic hormone to several patients who had acute rheumatic fever and to a few who had severe rheumatic carditis and cardiac failure. Daily doses of the former were usually 200 mg. for the first several days, later usually 100 mg.; total doses ranged from about 1.2 to 7.4 Gm. within three to nine weeks. Daily doses of the latter were 25 to 60 mg. for the first several days, usually 45 mg.; later daily doses decreased to 10 to 15 mg. Total doses ranged from 409 mg. to 1.4 Gm. given within two to eight weeks.

The acute manifestations of rheumatic fever were quickly abolished. Fever, acute polyarthritis and tachycardia usually disappeared within five days or less. Prolonged P-R intervals in the electrocardiogram usually became normal within three weeks or less. Sedimentation rates and hyperglobulinemia were reduced; rates became normal in an average of about 18 days. When the hormones were not given long enough there were short, usually mild, rheumatic recurrences: these consisted sometimes of transient increases of sedimentation rate, pulse rate or P-R interval, or all three, without fever or articular symptoms; sometimes the fever and articular symptoms also recurred. When the hormones were given again these recurrences disappeared.

What might be called the acute rheumatic state (that period during which the unknown irritant of rheumatic fever operates to produce in affected responsive tissues inflammatory reactions of an exudative and proliferative type) may last about six to 12 weeks. The hormones do not remove this irritant, hence they do not shorten the acute rheumatic stage. However, they appear to protect the affected tissues against the irritant; consequently the abnormal physiological processes which characterize the disease subside, and the clinical and laboratory manifestations disappear. This protection continues as long as the hormones are administered, even though the underlying and now essentially symptomless acute rheumatic state has not yet run its course.

With this concept in mind it can be understood why hormones must be given (or if their use has been discontinued prematurely, readministered) until persistently negative clinical and laboratory data indicate that the acute rheumatic state has passed. Because cardiac muscle and fibrous tissue of heart valves are not much different from the skeletal muscle and fibrous tissues which are so promptly benefited in rheumatoid arthritis, it is hoped that the proper use of these hormones may prevent or modify the development of the cardiac complications of acute rheumatic fever. Reexamination of the hearts of these patients several months after use of the hormones was stopped revealed no definite evidence of new or increased old rheumatic carditis [7b, c] except in 2 patients, each of whom had just experienced another attack of acute rheumatic fever. To prevent such recurrences our revised policy involves consideration of chemoprophylaxis. There is reason to hope that the combination of hormonal usage during the acute stage of the disease plus the subsequent prophylactic oral use of penicillin or sulfonamides may provide greater cardiac protection than has been possible heretofore. Further prolonged observations must be made to determine the value of such a plan. Further data on this problem are being reported elsewhere.[7c]

Other Articular Conditions.—In several cases of lupus erythematosus disseminatus use of either of the hormones was accompanied with temporary disappearance not only of arthritis but also of fever, skin reactions, pericarditis, pleurisy and leukopenia.[8] Renal lesions and albuminuria, if present, appeared to be unaffected. Sometimes severe cardiac lesions have been unresponsive and blood pressure has increased. Although these hormones have not been as beneficial in lupus erythematosus disseminatus as in rheumatoid arthritis, they appear to be helpful often, perhaps even life saving in acute crises. Temporary remissions, not cures, were induced.

Psoriatic arthritis has been, in our experience, more responsive to these hormones than the associated psoriasis, which has disappeared temporarily when fairly large doses were given.[9] In tuberculous arthritis (two cases) articular symptoms and signs and sedimentation rates decreased notably but results of articular biopsy, guinea pig test and cultures remained positive.

To conserve the hormones for use in more serious conditions they have been administered by us or others in only a few cases of osteoarthritis. One of our patients with leukemia and preexisting primary osteoarthritis obtained from cortisone articular relief which was maintained for some time after use of the hormone was discontinued. The articular symptoms and sometimes the intestinal symptoms of chronic ulcerative colitis have been responsive to these hormones in some cases.[10]

Independent investigations on the effect of pituitary adrenocorticotropic hormone on quiescent gout and acute gouty arthritis have been carried out by Robinson, Conn, Block, Louis and Katz,[11] by Hellman [12] and by Wolfson and his associates.[13] A close relationship between gouty arthritis and the function of adrenal cortex was demonstrated. Pituitary adrenocorticotropic hormone provoked attacks of acute gouty arthritis in patients with quiescent gout but also promptly relieved patients with acute gouty arthritis. Rapid amelioration of acute gouty arthritis by the use of this drug or of cortisone has since been reported by others.[11] Confirmatory observations on the effects of either drug on these various rheumatic and articular conditions have been made by a number of investigators.

---

[7] (*a*) Hench, P. S.; Slocumb, C. H.; Barnes, A. R.; Smith, H. L.; Polley, H. F., and Kendall, E. C.: The Effects of the Adrenal Cortical Hormone 17-Hydroxy-11-Dehydrocorticosterone (Compound E) on the Acute Phase of Rheumatic Fever: Preliminary Report, Proc. Staff Meet., Mayo Clin. **24:** 277-297 (May 25) 1949. (*b*) Barnes, A. R., and Smith, H. L.: The Effects of the Administration of Cortisone and ACTH on Patients with Acute Rheumatic Fever, Mod. Concepts Cardiovas. Dis. **19:** 59-60 (Feb.) 1950. Barnes, A. R.: Effects of Cortisone and ACTH in 14 Patients with Acute Rheumatic Fever, Proc. Staff Meet., Mayo Clin. **25:** 478-479 (Aug. 16) 1950. (*c*) Barnes, A. R.; Smith, H. L.; Slocumb, C. H.; Polley, H. F., and Hench, P. S.: The Effect of Cortisone and ACTH on the Acute Phase of Rheumatic Fever: Further Observations, unpublished data.

[8] Brunsting, L. A.; Slocumb, C. H., and Didcoct, J. W.: Effects of Cortisone on Acute Disseminated Lupus Erythematosus, Proc. Staff Meet., Mayo Clin. **25:** 479-482 (Aug. 16) 1950.

[9] Polley, H. F., and Brunsting, L. A.: Effects of Cortisone and ACTH on Psoriatic Arthritis, unpublished data.

[10] Dearing, W. H., and Brown, P. W.: Experiences with Cortisone and ACTH in Chronic Ulcerative Colitis, Proc. Staff Meet., Mayo Clin. **25:** 486-488 (Aug. 16) 1950.

[11] Robinson, W. D.; Conn, J. W.; Block, W. D., and Louis, L. H.: Role of the Adrenal Cortex in Urate Metabolism and in Gout, Proc. Central Soc. Clin. Research **21:** 23-24, 1948. Robinson, W. D.; Conn, J. W.; Block, W. D.; Louis, L. H., and Katz, J.: Role of the Anterior Pituitary and Adrenal Cortex in Urate Metabolism and in Gout, Ann Rheumat. Dis. **8:** 312-313 (Dec.) 1949. Robinson, W. D.; Conn, J. W.: Block, W. D., and Louis, L. H.: Role of the Adrenal Cortex in Urate Metabolism and in Gout, J. Lab. & Clin. Med. **33:** 1473-1474 (Nov.) 1948.

[12] Hellman, L.: Production of Acute Gouty Arthritis by Adrenocorticotropin, Science **109:** 280-281 (March 18) 1949.

[13] Wolfson, W. Q.; Levine, R.; Cohn, C.; Hunt, H. D.; Guterman, H. S., and Rosenberg, E. F.: Adrenocortical Dysfunction in Gout, Ann. Rheumat. Dis. **8:** 311 (Dec.) 1949. Wolfson, W. Q., and Cohn, C.: The Role of the Pituitary Adrenocorticotropic Hormone (ACTH) and of Adrenal Cortical Steroid Hormones in the Pathological Physiology and Experimental Therapeutics of Clinical Gout, in Mote, J. R.: Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 241-283.

MODE OF ACTION

How these two hormones produce their antirheumatic effect is still not clear. Rheumatoid arthritis is not a feature or complication of Addison's disease; indeed, rheumatoid arthritis and Addison's disease seldom coexist. The antirheumatic action of these hormones is not seemingly dependent on any of their metabolic or biochemical effects so far demonstrated. The adrenal glands of most rheumatoid patients under the stimulation of injected (exogenous) pituitary adrenocorticotropic hormone can apparently produce amounts of cortisone or a cortisone-like steroid sufficient to suppress the rheumatic manifestations. How much antirheumatic steroid these adrenals are producing without artificial stimulation or to what extent they are capable of responding spontaneously to sudden increases in tissue needs remains to be determined.

If there is no absolute deficiency of cortisone in rheumatoid arthritis perhaps there is a relative deficiency, one concerned with an increased destruction or with an increased tissue requirement for cortisone rather than with decreased production. Does pregnancy relieve rheumatoid arthritis by an increased production of cortisone or cortisone-like steroid? Does jaundice produce its ameliorating effects by lessening the inactivation or destruction of cortisone or by improving the utilization of cortisone at the tissue level? How does chrysotherapy benefit rheumatoid patients, through some influence on the pituitary-adrenal axis or by an entirely different mechanism involving fibroarticular tissues? Intensive study of these mechanisms of relief should be fruitful.

The fact that the effects of cortisone and pituitary adrenocorticotropic hormone are not disease specific but group specific (for example, antirheumatic and antiallergic) and demonstrable in a number of loosely related conditions (collagen diseases) suggests that the hormones act at the tissue level in some as yet unknown manner. They do not kill germs or cure any of the diseases whose symptoms they suppress; they appear instead to provide the susceptible tissues with a shieldlike buffer against the various irritants.

CLINICAL LIMITATIONS

These hormones (like substance X of jaundice or pregnancy) appear to have the power of controlling or reversing the physiological abnormalities of the diseases under discussion, in consequence of which the tissue reactions subside. These tissue reactions not only provide most of the symptoms of the disease but, if they are long continued, lead to proliferative and reparative histological changes which produce, for example, the "rheumatoid joint" or the chronic rheumatic heart These reparative changes are responsible for the pathologicoanatomic residues of the diseases, and they are not only largely irreversible but unaffected by cortisone or pituitary adrenocorticotropic hormone. Therefore, to obtain the best results the hormones should be used early, before irreversible changes in tissue have developed. With these distinctions in mind, it will be understood why the hormones may provide much more relief in a case of severe but early reversible rheumatoid arthritis than in a case of old arthritis of relatively slight (physiological) activity, in which articular (anatomical) residues are considerable. So, too, better results have been obtained in severe acute rheumatic fever with acute carditis than in less severe rheumatic fever superimposed on old damaged hearts. In short, it is the disease, not the residues of disease, which these hormones influence beneficially. To use a figure of speech, the hormones act like a fire suppressor or fire shield; they do not extinguish the fire, nor do they act as carpenters to repair the fire's damage.

PRACTICAL CONSIDERATIONS

Before these hormones can assume the role not merely of investigative agents but of acceptable therapeutic measures, certain practical problems must be solved. Sufficient amounts of cortisone and pituitary adrenocorticotropic hormone must become available and optimal methods of administration must be devised whereby the patient may receive the greatest antirheumatic effect at the least cost in terms of unwanted side effects.

Production of the Hormones.—In the matter of production great strides have been made by the two chief manufacturers of these hormones. Production schedules are far ahead of those considered possible a few months ago. Despite the fact that no new source of cortisone and no actual shortening of the method for its partial synthesis have yet been discovered, improvements in several of the 38 chemical procedures required for its production from desoxycholic acid have increased the ultimate yield satisfactorily. Methods for the preparation of pituitary adrenocorticotropic hormone also have been improved, and the potency and purity of current preparations have been increased. Several investigators[15] have developed peptide fragments of the hormone which retain the antirheumatic property, possess a molecular weight of only about 1,000 (as compared to 20,000 for the parent product) and give a basis for hoping that eventual synthesis of a potent peptide fragment may be accomplished. Meanwhile it is reported that the production of cortisone is forty-five times greater and that of pituitary adrenocorticotropic hormone is thirty times greater than it was a few short months ago. Prices have been reduced, other companies with large facilities are entering the field, and the future looks bright. But impatient rheumatic sufferers want the future now. Great efforts have been expended in the search for steroids related to cortisone which might not only be more available and cheaper, perhaps subject to total synthesis, but also possess antirheumatic properties and be devoid of side effects.

---

[14] (*a*) Spies, T. D., and Stone, R. E.: Relief of the Symptoms of Acute Gout and Rheumatoid Arthritis by Means of Pituitary Adrenocorticotropic Hormone, South M. J. **42:** 720-722 (Aug.) 1949. (*b*) Thorn, G. W.; Bayles, T. B.; Massell, B. F.; Forsham, P. H.; Hill, S. R., Jr.; Smith, S., III, and Warren, J. E.: Studies on the Relation of Pituitary-Adrenal Function to Rheumatic Disease, New England J. Med. **241:** 529-537 (Oct. 6) 1949. (*c*) Margolis, H. M., and Caplan, P. S.: Treatment of Acute Gouty Arthritis with Pituitary Adrenocorticotropic Hormone (ACTH), J. A. M. A. **142:** 256-258 (Jan. 28) 1950. Boland[3a]

[15] Li, C. H.: Biochemistry of Adrenocorticotropic Hormone: Review, in Reifenstein, E. C., Jr., and Johnson, V.: Conference on Metabolic Aspects of Convalescence: Transactions of the Seventeenth Meeting, New York, Josiah Macy, Jr., Foundation, 1948, pp. 114-132. Li, C. H.: Relative Size of Adrenocorticotrophically Active Peptide Fragments, Federation Acta endocrinol. **3:** 299-309 (Dec.) 1949. Kinsell, L. W.; Li, C. H.: Results of Administration of [illegible] e Peptides (ACTH Peptides) to a Patien [illegible] Arthritis, Acta endocrinol. **3:** 299-309 (D [illegible] Li, C. H., Margen, S.; Michaels, G. D., a [illegible] Effects of a Peptide Mixture Derived from ACTH (Li) in Comparison with Those Resulting from Whole ACTH Administration in a Human Subject, in Mote, J. R.: Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 70-82. Morris, P., and Morris, C. J. O. R.: Isolation of a Polypeptide with High Adrenocorticotrophic Activity: Preliminary Communication, Lancet **1:** 117-118 (Jan. 21) 1950. Astwood, E. B.; Cleroux, A. P.; Payne, R. W., and Raben, M. S.: Therapeutic Studies on Some Newer Corticotrophic (ACTH) Preparations, Bull. New England M. Center **12:** 2-10 (Feb.) 1950. Brink, N. G.; Meisinger, M. A. P., and Foekers, K.: The Activity of a Hydrolysate of Adrenocorticotropic Hormone in Rheumatoid Arthritis, J. Am. Chem. Soc. **72:** 1040-1041 (Feb.) 1950.

Effect of Steroids Related to Cortisone.—Many steroids more or less closely related to cortisone have been prepared for clinical testing. In the Mayo Clinic's section on rheumatic diseases we have tested 12 of them; results have been reported by Polley and Mason.[16] Ten of them belonged, like cortisone, to the Δ^4-pregnene series and differed from cortisone by variations at the carbon-11 or carbon-17 position or at both, by a single change in the side chain, by changes at both carbon-11 and in a side chain or by changes in the degree of saturation in the A and B rings. In other words, several of them were cortisone except for a single alteration. Despite this nine of them were ineffective in rheumatoid arthritis although given in amounts comparable to effective doses of cortisone. Also ineffective in our hands and in those of certain other rheumatologists were two more preparations which were recommended as possible substitutes for cortisone, namely, Δ^5-pregnenolone and 21-acetoxy-pregnenolone, known commercially also as natolone and artisone respectively. Belonging to the Δ^5-pregnene series they are much more distantly related chemically to cortisone than the other ineffective steroids just mentioned. Early favorable reports on progesterone and testosterone propionate have not been confirmed. Several other steroids have recently been reported as being ineffective.[17]

The only steroid besides cortisone that we have found to possess significant or comparable antirheumatic activity is 17-hydroxycorticosterone, Kendall's compound F.[18] Supplies of this material are so scarce that we have been able to give it so far to only 2 rheumatoid patients. It has decided antirheumatic properties, but whether they are greater or lesser than those of cortisone remains to be determined. Since its production is more difficult than that of cortisone compound F offers no early solution to the present problem of inadequate supply.

Effect of Adrenal Cortex Extracts.—We have administered to a few rheumatoid patients four extracts of adrenal cortex.[16] Two were ineffective (Kendall's extract and Upjohn's lipo-adrenal cortex extract, double strength). One concentrated extract (adrenal cortex extract[18] in propylene glycol, twenty strength) possessed mild antirheumatic activity, but a specially prepared highly concentrated extract, given in capsules orally, demonstrated pronounced antirheumatic properties. The potency of this preparation was in all likelihood based on its content of compounds E and F. It is of considerable significance that this preparation, containing compounds E (cortisone) and F, was potent when given orally. This confirms certain animal experiments which have led to the conclusion that cortisone may be effective when given by mouth.[19]

Effect of Other Substances.—Earlier favorable European and British reports on the supposed effectiveness of desoxycorticosterone acetate given with vitamin C (ascorbic acid) have been outnumbered by more recent unfavorable reports.[20] Use of this combination was investigated by our associate Dr. Paul Bilka,[21] who observed no objective changes or significant effect on sedimentation rates in several rheumatoid patients. Such transient subjective improvement as developed occasionally was no greater than that obtained by giving desoxycorticosterone and vitamin C in half the recommended dosage, by giving desoxycorticosterone followed by an injection of saline solution (without vitamin C) or by giving saline solution (without desoxycorticosterone) followed by vitamin C, or even by giving two consecutive injections of saline solution. The hope that injections of epinephrine might stimulate the production in patients of significant amounts of cortisone has not materialized.[22]

SPECIFICITY OF CORTISONE

The negative results with these various steroids indicate that cortisone possesses a high degree of physiologic specificity approached only by 17-hydroxycorticosterone (compound F of Kendall), which differs from cortisone only in that at the important carbon-11 position there is a hydroxyl radical in place of the ketone group.

ANTIRHEUMATIC PROPERTIES OF STEROIDS

From their study Polley and Mason concluded that the antirheumatic properties of the steroid structure are dependent on the presence of a ketone group at carbon-3, either a ketone or a hydroxyl group at carbon-11, a ketone group at carbon-20, a hydroxyl group at carbon-17 and at carbon-21 and a double bond between carbon atoms 4 and 5.

OPTIMAL DOSAGE AND METHOD OF HORMONAL ADMINISTRATION

Further experience is needed to determine the optimal dosage and methods of administration of cortisone and pituitary adrenocorticotropic hormone. Present procedures are tentative.

Acute Rheumatic Fever.—For the investigative management of acute rheumatic fever the hormones should be given at first in full suppressive doses, perhaps 200 mg. of cortisone or about 60 mg. of pituitary adrenocorticotropic hormone daily until the symptoms have largely or completely disappeared and the sedimentation rate has approached normal. This may take 10 to 20 days. Then smaller maintenance doses should be given for one or two more weeks: about 100 mg of cortisone or about 30 mg. of pituitary adrenocorticotropic hormone daily. The patient should then be carefully watched for another two weeks or so, and if any signs of rheumatic activity recur (any one or more of the following: rising sedimentation rate; fever; significant increases in resting pulse rate or P-R interval, or return of articular symptoms) one or the other agent should be given again in fairly generous doses for perhaps 10 to 20 days more. The doses required for children approximate those needed for adults, and the usual pediatric formulas for calculating doses do not fully apply.

---

[16] Polley, H F., and Mason, H L Rheumatoid Arthritis: Effects of Certain Steroids Other Than Cortisone and of Some Adrenal Cortex Extracts, J A M A **143:** 1474 1481 (Aug 26) 1950.

[17] (*a*) Edström, G. Undersokningar över [illegible] kronisk artrit (ACTH, hypofysinplantation, via progestin, testosteron), Svenska läkartidningen 4[illegible], 1949; (*b*) Spies, T D, and Stone, R E: Pituitary Adrenocorticotropic Hormone (A C T. H) as a Tool of Clinical and Laboratory Research, Lancet **1:** 11 14 (Jan 7) 1950 Alexander, W. R M., and Duthie, J J. R.: Progesterone in the Treatment of Rheumatoid Arthritis. A Clinical Trial in 5 Cases, ibid **1:** 297 298 (Feb 18), 1950 Terry, L L, and London, F. Effects of Reichstein's Compound S, Pregnenetriolone Acetate, and 17-Alpha Hydroxyprogesterone in Rheumatoid Arthritis, Proc Soc Exper. Biol & Med **73:** 251-252 (Feb) 1950 (*c*) Smith, R T Testosterone, Pregnenolone and Irradiated Ergosterol in Treatment, Philadelphia Med **45:** 1201-1202 (April 8) 1950 (*d*) Rosenberg, E F.: Experiences with Compound E (Cortisone), Other Adrenal Cortical Steroids, and Pituitary Adrenocorticotrophic Hormone, Proc Inst Med Chicago **18:** 95 96 (April 15) 1950 Guest, C. M.; Kammerer, W. H; Cecil, R. L, and Berson, S A.: Epinephrine, Pregnenolone and Testosterone in the Treatment of Rheumatoid Arthritis, J. A. M. A **143:** 338-344 (May 27) 1950 Stock, J. P. P., and McClure, E C: Pregnenolone in the Treatment of Rheumatoid Arthritis, Lancet **1:** 125 128 (July 22) 1950.

[18] Supplied to us by Drs E Gifford Upjohn and H. F. Hailman, the Upjohn Company

[19] Freyberg, R H, Traeger, C H; Adams, C H, Kuscu, T, Wainerdi, H, and Bonomo, I. Effectiveness of Cortisone Administered Orally, Science **112:** 429 (Oct 13) 1950 Hench, P S; Slocumb C H, Polley, H. F., and Kendall, E C.: Unpublished data

[20] The combination is advertised in this country as cortilin, as cortinaq and vitamin C or as percorten® with vitamin C

[21] Bilka, P. J.; Hench, P. S.; Slocumb, C H, and Polley, H F Unpublished data.

[22] Thorn and others[14b] Edström[17a] Smith[17c]

In summary, the hormones should be given first in full suppressive doses, then in smaller maintenance doses until it is evident that the underlying acute rheumatic state has disappeared. Consideration should then be given to subsequent prolonged chemoprophylaxis, for example, with penicillin given orally. Because in cases of acute rheumatic fever the hormones need apparently to be given for only a relatively short time, a few weeks, the occurrence of side effects may not provide a significant problem. If minor side effects develop (round face, striae, transient amenorrhea or folliculitis) they can generally be ignored in behalf of the patient's over-all needs. If troublesome edema or other major side effects develop, measures to be mentioned hereafter may suffice to control them.

Rheumatoid Arthritis.—Studies on the development of optimal methods for administering the hormones in the face of chronic rheumatoid arthritis (or other chronic diseases) fall into two groups: the development of (1) a method whereby the results of a relatively short course of hormone administration can be prolonged significantly or (2) a method whereby the hormones can be given more or less continuously without the development of significant side effects.

Optimal After-Effects: As stated previously, about 25 per cent of our rheumatoid patients (first series) obtained pronounced relief which continued (or after a short relapse returned) after the use of the hormones was discontinued. Let us reexamine the methods of administration used in these cases [1] in which after-effects were optimal.

One patient retained relief for only four days after her first eight day course of cortisone (100 mg. daily); after a subsequent 12 day course of pituitary adrenocorticotropic hormone she had a short (four day) relapse and then regained much relief but it lasted only two weeks. After a third (18 day) course of 200 mg. of cortisone daily she retained appreciable relief for seven months.

A second patient was given pituitary adrenocorticotropic hormone for 87 days. Thereafter he has maintained most of his relief to date (nine and a half months).

A third patient was given a long course of cortisone (133 days) after which he had a mild relapse for a month, then regained and maintained almost complete relief for 11 months until influenza precipitated a relapse.

A fourth patient received two long courses of cortisone in suboptimal but progressively effective doses. The first course lasted 75 days; after an interval of 17 days, during which he had a partial relapse, a second course of 140 days was given (total 215 days of cortisone). After this he had a mild relapse, but after 12 months he is still (to date) retaining 80 per cent of the hormonal relief.

A fifth patient who on admission was confined to a wheelchair received cortisone for 25 days, after which she retained most of her decided relief for 14 months

In summary the excellent after-effects in these five cases followed no one method of administration. In one case they followed a single short course, in another case three short courses in which pituitary adrenocorticotropic hormone alternated with cortisone, and in the three remaining cases one or two fairly long courses. Thus no particular course or method emerges as obviously superior.

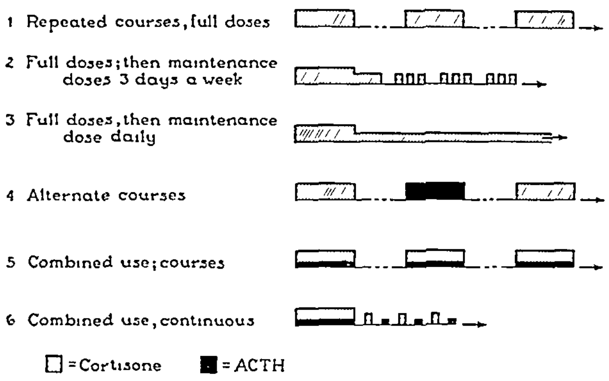
Were these posthormonal remissions spontaneous or related to the use of the hormones? Is 25 per cent the incidence rate of spontaneous remissions which should be expected even in such a group of cases of severe and previously progressive rheumatoid arthritis? Were these patients' symptoms suppressed until a spontaneous remission was due, or were these hormones and the method of their use responsible for the satisfactory after-effects? Further experience must determine the answers to these questions.

METHODS OF ADMINISTRATION UNDER INVESTIGATION

The following methods of administration require further investigation and comparison (see the accompanying illustration):

Repeated Short Courses of Cortisone or Pituitary Adrenocorticotropic Hormone.—Patients so managed would have few if any significant side effects, and the cost would be materially reduced although some relapse should be expected between courses. Whether or not the posthormonal periods of relief would often become successively longer seems uncertain at this time (plan 1 of the illustration).

Alternating Short Courses.—Under this scheme the patient is given a short course of cortisone (until the disease is largely suppressed), then a free interval, then a course of pituitary adrenocorticotropic hormone, another free interval, then more cortisone and so on. The response to such a plan was progressively satisfactory in one case, not unusual in another case. This plan has the advantages and disadvantages of the first plan with an added theoretical advantage: Whatever transient adrenal atrophy and cortical inhibition may result from use of cortisone may be repeatedly neutralized or overcome by the subsequent use of pituitary adrenocorticotropic hormone; in turn the adrenal hypertrophy and hyperplasia induced by the latter agent may be more promptly reduced by the next course of the former (plan 4).


1 Repeated courses, full doses
2 Full doses; then maintenance doses 3 days a week
3 Full doses, then maintenance dose daily
4 Alternate courses
5 Combined use; courses
6 Combined use, continuous
☐ = Cortisone
■ = ACTH

The optimal method of administration of cortisone or pituitary adrenocorticotropic hormone (ACTH) in the investigative management of chronic diseases such as rheumatoid arthritis has not yet been established. Several different plans of administration are under investigation (see text).

More or Less Continuous Administration of One or the Other Hormone.—Two variants are being studied: (*a*) Some patients have been given full suppressive doses at first and later smaller maintenance doses daily (plan 3). (*b*) Other patients, after the early period of daily suppressive doses, have done well on maintenance doses given only three days a week, for example, on Monday, Wednesday and Friday (plan 2) [8a,c] Larger maintenance doses may be required for this scheme than for the first variant (plan 3).

Other Modifications.—Two other modifications of the three plans of administration thus far investigated are under consideration. These are: repeated short courses of cortisone combined with pituitary adrenocorticotropic hormone and a suppressive course of the combined hormones followed by smaller maintenance doses of each continued indefinitely. These plans have the supposed advantage of plan 2 plus the theoretical possibility that a more nearly balanced and perhaps more effective cortical secretion might be provided. The value of these last two plans (5 and 6) remains to be proved.

Augmented Administration.—Certain workers have expressed the hope that some substance (gold salts, salicylates, vitamin C or other steroid) might be found which would augment or enhance the effect of doses of cortisone or pituitary adrenocorticotropic hormone which were so small that no side effects would develop. Our experience with salicylates and vitamin C given during courses of these hormones has been disappointing; no potentiation of cortisone was observed.

METHODS OF WITHDRAWAL

Sudden withdrawal of either hormone may be followed by a relatively short period of annoying weakness, occasionally by a "rebound relapse" of articular symptoms. These phenomena are presumably due to the temporary inhibition of adrenal cortex function which use of the exogenous hormones induces. This posthormonal period of relative adrenocortical insufficiency disappears fairly soon. To minimize it two methods of withdrawal have been suggested: (1) to taper off the daily doses of either of the hormones, giving successively smaller doses the last few (seven to 10) days and (2) to conclude a course of cortisone by giving pituitary adrenocorticotropic hormone for a few days.

PREVENTION AND CONTROL OF SIDE EFFECTS

When the prolonged use of cortisone or pituitary adrenocorticotropic hormone appears necessary (for example, in the investigative management of rheumatoid arthritis) the following procedures will help to prevent, minimize or counteract adverse side effects. When the early suppressive doses have brought the symptoms of the disease largely under control, as soon as possible the smallest effective maintenance doses should be used. Suppression of subjective symptoms, and not necessarily normalization of sedimentation rates also, should be considered sufficient. If the doses needed for full symptomatic relief begin to produce significant side effects, the dosage should be reduced and physician and patient alike should be content with less than full suppression of the disease.

If significant edema develops or persists, a reduced intake of sodium chloride (1 Gm. or less daily for adults) or the oral use of a diuretic such as potassium nitrate (2 Gm. or more three times a day) or both may suffice. For one menopausal woman [1] the administration of estrogen, 5 mg. twice a week, during a second course of cortisone prevented the development of several side effects (among them round face, hypertrichosis and nervousness) which had occurred during the first course. Further studies with estrogen are being made. Significant imbalance of electrolytes will not often occur when the daily doses of cortisone are 100 mg. or less, of pituitary adrenocorticotropic hormone 40 mg. or less, and especially when patients are eating at will rather than having dietary restrictions incident to metabolic studies. If hypopotassemic, hypochloremic alkalosis does occur (with or without muscular weakness, hypertension and electrocardiographic alterations) the oral administration of potassium chloride, 1 or 2 Gm. three times a day, is indicated. Significant nitrogen deficits will probably not develop in the rheumatoid patients who are on unrestricted diets and who are not receiving the larger doses of the hormones. If significant loss of weight and weakness should develop, an increased intake of nitrogen will probably suffice. Testosterone propionate, 25 mg. given intramuscularly daily, in 1 case prevented the nitrogen deficit produced by large doses of cortisone.[5] Testosterone propionate can be given sublingually.

The minor alterations of psyche (grades 1 and 2) need no treatment. The changes described as a grade 3 response may require the establishment of a psychological regimen comparable to that which would be needed to manage the same kind of reaction in other clinical settings. Such adjuncts as sedation, a fixed schedule of activities and the opportunity to discuss basic psychological difficulties can provide a support which may make the continuation of hormonal usage possible. Cessation of hormonal therapy removes the provocative component. Obviously the treatment of the fundamental psychiatric problem needs a special approach. In our experience a frank psychotic response (grade 4) is infrequent and is only likely to occur in patients who are psychologically vulnerable. The hormones should be used with caution for patients with previous history of a psychosis or other evidence of pronounced instability. The management of a hormonally precipitated psychotic episode requires specifically indicated measures to control the response, including the withdrawal of the hormone.[6] Measures to prevent or control postcortisone weakness have been mentioned under "Methods of Withdrawal."

SUMMARY AND CONCLUSIONS

The antirheumatic properties of cortisone and pituitary adrenocorticotropic hormone (ACTH) have been confirmed by several groups of investigators.

During the time of their administration, these hormones have exerted a decidedly suppressive effect on the clinical and biochemical manifestations of rheumatoid arthritis. When the use of the hormones is discontinued symptoms recur rather promptly in most cases, but in several of our cases pronounced improvement has persisted for several (seven to 14) months. The optimal dosage and methods of administration of these hormones for the investigative management of a chronic disease such as rheumatoid arthritis remain to be determined. Several schemes are under investigation. Rather prolonged relief with minimal side effects has been provided in some cases by the continued use of small maintenance doses after the earlier use of larger suppressive doses.

Cortisone or pituitary adrenocorticotropic hormone generally abolishes quickly the manifestations of acute rheumatic fever. There is reason to believe that the lesions of acute rheumatic carditis also are suppressed, in consequence of which the prevention of certain chronic cardiac lesions may be anticipated with some confidence, especially if adequate hormonal usage during the acute rheumatic state is followed by prolonged chemoprophylaxis (for example, with penicillin given orally). The articular complications of disseminated lupus erythematosus and psoriasis are responsive to these hormones. Limited results were obtained in 2 cases of tuberculous arthritis.

These hormones are powerful agents which may affect many functions and tissues of the body besides those of joints and muscles. Their prolonged use, at least in certain doses, may produce certain undesirable effects. These side effects have, to date, been transient and reversible. Certain measures have been developed to minimize or control some of them, but these effects *still constitute an important problem for further inves-*

tigation. If control of the side effects is not adequate in any given case, smaller doses of the hormones should be used and patient and physician alike should be content with a reduced amount of symptomatic relief.

With the exception of 17-hydroxycorticosterone (compound F of Kendall), none of the currently available steroids chemically related to cortisone appears to have significant antirheumatic properties. The oral administration of one specially prepared extract of adrenal cortex containing compounds E (cortisone) and F produced appreciable relief in 1 case of rheumatoid arthritis and has lent support to the belief that cortisone, and perhaps also compound F, will be chemically effective when given orally.

The mode of action of cortisone and pituitary adrenocorticotropic hormone in rheumatic diseases is not yet known, but the hormones appear to provide to the tissues affected in these diseases a shieldlike buffer against a variety of irritants.

The results of recent and current investigative studies appear to provide justification for the impending restricted application of these hormones to the field of therapy, at least in certain acute rheumatic and articular conditions.

EFFECT OF PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) ON RHEUMATIC FEVER AND RHEUMATIC CARDITIS

BENEDICT F. MASSELL, M.D.
and
JOSEPH E. WARREN, M.D.
Boston

That cortisone and pituitary adrenocorticotropic hormone (ACTH) might be useful in the treatment of rheumatic fever was first suggested by Hench and his co-workers[1] in May, 1949, shortly after they had announced their observations on the remarkable effects of these hormones in rheumatoid arthritis.[2] Although more than a year has now elapsed, published data on the effects of these hormones on the clinical course of rheumatic fever are still limited.

Hench's original report[1] included three rheumatic fever patients treated at the Mayo Clinic with cortisone for periods of 21 to 37 days and one patient who had received pituitary adrenocorticotropic hormone for seven days at the time that the report was prepared. More recent publications from the Mayo Clinic[3] have included data on these same cases as well as on four additional cortisone-treated patients and three additional ACTH-treated patients. Elkinton and others[4] administered the latter agent to two patients with rheumatic fever but discontinued the hormone after only three days of treatment. McEwen and his associates[5] reported observations on three patients, one of whom was treated with pituitary adrenocorticotropic hormone alone and two of whom were treated with cortisone first and then with the other hormone. Therapy was continued for periods totaling 30 to 45 days. In a recent article, Thorn and co-workers[6] described the apparent response of a girl with severe rheumatic fever to pituitary adrenocorticotropic hormone administered for a total of only 72 hours.

Preliminary reports of our own experience with this hormone in rheumatic fever have already been published.[7] One of these reports,[7c] which includes detailed case histories of the first 10 patients, covers the period from May 17 to Oct. 23, 1949. During the interval which has elapsed from the latter date to the preparation of this more current report (June 10, 1950), 10 additional patients with definite rheumatic fever[8] have received pituitary adrenocorticotropic hormone therapy at the House of the Good Samaritan. The purpose of the present communication is to summarize our clinical observations on the entire series of 20 patients so treated.

CLINICAL MATERIAL AND METHOD OF TREATMENT

The manifestations of rheumatic fever and carditis present in each of the 20 patients at the time pituitary adrenocorticotropic hormone therapy was begun are indicated in table 1. The duration of the rheumatic attack prior to the beginning of hormone treatment, the number of previous attacks of rheumatic fever, and the age and sex of the patients are summarized in table 2. It is evident from these data that nearly all of the important manifestations of rheumatic fever are represented by this clinical series and that the majority of the patients had severe rheumatic fever and a high degree of active rheumatic carditis.

To obtain information regarding the optimum method of applying pituitary adrenocorticotropic hormone[9] to the treatment of rheumatic fever, various dosage schedules have been tried. These variations in therapy include amount of drug in each individual dose, total daily amount, number of doses per day, number of days of treatment, and total amount administered throughout the period of therapy. In the majority of the patients the total daily dose of the hormone was gradually reduced as treatment progressed, but in some cases the daily amount was kept constant. Some of the more pertinent data relevant to treatment are summarized in table 3.

Read in the Symposium on ACTH and Cortisone before the Section on Experimental Medicine and Therapeutics at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

From the House of the Good Samaritan (Children's Medical Center). This study was supported by grants from the Helen Hay Whitney Foundation and the National Heart Institute of the United States Public Health Service.

[1] Hench, P. S.; Slocumb, C. H.; Barnes, A. R.; Smith, H. L.; Polley, H. F., and Kendall, E. C.: Effects of Adrenal Cortical Hormone 17-Hydroxy-11-Dehydrocorticosterone (Compound E) on Acute Phase of Rheumatic Fever: Preliminary Report, Proc. Staff Meet., Mayo Clin. **24:** 277-297 (May) 1949.

[2] Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Effect of *Hormone of Adrenal Cortex (17-Hydroxy-11-Dehydrocorticosterone:* Compound E) and of Pituitary Adrenocorticotropic Hormone on Rheumatoid Arthritis: Preliminary Report, Proc. Staff Meet., Mayo Clin. **24:** 181-197 (April) 1949.

[3] Barnes, A. R., and Smith, H. L.: The Effects of the Administration of Cortisone and ACTH on Patients with Acute Rheumatic Fever, Mod. Concepts Cardiovas. Dis. **19:** 59-60 (Feb.) 1950. Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Effects of Cortisone Acetate and Pituitary ACTH on Rheumatoid Arthritis, Rheumatic Fever and Certain Other Conditions: A Study in Clinical Physiology, Arch. Int. Med. **85:** 545-666 (April) 1950.

[4] Elkinton, J. R., and others: Effects of Pit [illegible] Hormone (ACTH) Therapy, J. A. M. A. **141:**

[5] McEwen, C., and others: The Effect of [illegible] Rheumatic Fever, Bull. New York Acad. Med. **26:** 212-228 (April) 1950

[6] Thorn, G. W.; Forsham, P. H.; Frawley, T. F.; Hill, S. R., Jr.; Roche, M.; Staehelin, D., and Wilson, D. L.: The Clinical Usefulness of ACTH and Cortisone, New England J. Med. **242:** 783-793 (May 18) 1950; 824-834 (May 25) 1950; 865-872 (June 1) 1950.

[7] (*a*) Massell, B. F.; Warren, J. E., and Sturgis, G. P.: Observations on Effects of ACTH in Patients with Rheumatic Fever and Rheumatic Carditis, in Mote, J. R.: Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 405-422. (*b*) Thorn, G. W.; Bayles, T. B.; Massell, B. F.; Forsham, P. H.; Hill, S. R., Jr.; Smith, S, III, and Warren, J. E.: Studies on the Relation of Pituitary-Adrenal Function to Rheumatic Disease, New England J. Med. **241:** 529-537 (Oct. 6) 1949. (*c*) Massell, B. F.; Warren, J. E.; Sturgis, G. P.; Hall, B., and Craige, E.: Clinical Response of Rheumatic Fever and Acute Carditis to ACTH, ibid. **242:** 641-647 (April 27); 692-698 (May 4) 1950.

[8] Not included in this group is one patient with possibly complicating bronchiectasis and several patients in whom the clinical course has [illegible] sufficiently progressed for adequate evaluation.

[9] The pituitary adrenocorticotropic hormone used in these studi[illegible] supplied by Dr. John R. Mote of the Armour Laboratories, [illegible] All doses are recorded in terms of milligrams of the Armour [illegible]

plans have the supposed advantage of plan 2 plus the theoretical possibility that a more nearly balanced and perhaps more effective cortical secretion might be provided. The value of these last two plans (5 and 6) remains to be proved.

Augmented Administration.—Certain workers have expressed the hope that some substance (gold salts, salicylates, vitamin C or other steroid) might be found which would augment or enhance the effect of doses of cortisone or pituitary adrenocorticotropic hormone which were so small that no side effects would develop. Our experience with salicylates and vitamin C given during courses of these hormones has been disappointing; no potentiation of cortisone was observed.

METHODS OF WITHDRAWAL

Sudden withdrawal of either hormone may be followed by a relatively short period of annoying weakness, occasionally by a "rebound relapse" of articular symptoms. These phenomena are presumably due to the temporary inhibition of adrenal cortex function which use of the exogenous hormones induces. This posthormonal period of relative adrenocortical insufficiency disappears fairly soon. To minimize it two methods of withdrawal have been suggested: (1) to taper off the daily doses of either of the hormones, giving successively smaller doses the last few (seven to 10) days and (2) to conclude a course of cortisone by giving pituitary adrenocorticotropic hormone for a few days.

PREVENTION AND CONTROL OF SIDE EFFECTS

When the prolonged use of cortisone or pituitary adrenocorticotropic hormone appears necessary (for example, in the investigative management of rheumatoid arthritis) the following procedures will help to prevent, minimize or counteract adverse side effects. When the early suppressive doses have brought the symptoms of the disease largely under control, as soon as possible the smallest effective maintenance doses should be used. Suppression of subjective symptoms, and not necessarily normalization of sedimentation rates also, should be considered sufficient. If the doses needed for full symptomatic relief begin to produce significant side effects, the dosage should be reduced and physician and patient alike should be content with less than full suppression of the disease.

If significant edema develops or persists, a reduced intake of sodium chloride (1 Gm. or less daily for adults) or the oral use of a diuretic such as potassium nitrate (2 Gm. or more three times a day) or both may suffice. For one menopausal woman [1] the administration of estrogen, 5 mg. twice a week, during a second course of cortisone prevented the development of several side effects (among them round face, hypertrichosis and nervousness) which had occurred during the first course. Further studies with estrogen are being made. Significant imbalance of electrolytes will not often occur when the daily doses of cortisone are 100 mg. or less, of pituitary adrenocorticotropic hormone 40 mg. or less, and especially when patients are eating at will rather than having dietary restrictions incident to metabolic studies. If hypopotassemic, hypochloremic alkalosis does occur (with or without muscular weakness, hypertension and electrocardiographic alterations) the oral administration of potassium chloride, 1 or 2 Gm. three times a day, is indicated. Significant nitrogen deficits will probably not develop in the rheumatoid patients who are on unrestricted diets and who are not receiving the larger doses of the hormones. If significant loss of weight and weakness should develop, an increased intake of nitrogen will probably suffice. Testosterone propionate, 25 mg. given intramuscularly daily, in 1 case prevented the nitrogen deficit produced by large doses of cortisone.[5] Testosterone propionate can be given sublingually.

The minor alterations of psyche (grades 1 and 2) need no treatment. The changes described as a grade 3 response may require the establishment of a psychological regimen comparable to that which would be needed to manage the same kind of reaction in other clinical settings. Such adjuncts as sedation, a fixed schedule of activities and the opportunity to discuss basic psychological difficulties can provide a support which may make the continuation of hormonal usage possible. Cessation of hormonal therapy removes the provocative component. Obviously the treatment of the fundamental psychiatric problem needs a special approach. In our experience a frank psychotic response (grade 4) is infrequent and is only likely to occur in patients who are psychologically vulnerable. The hormones should be used with caution for patients with previous history of a psychosis or other evidence of pronounced instability. The management of a hormonally precipitated psychotic episode requires specifically indicated measures to control the response, including the withdrawal of the hormone.[6] Measures to prevent or control postcortisone weakness have been mentioned under "Methods of Withdrawal."

SUMMARY AND CONCLUSIONS

The antirheumatic properties of cortisone and pituitary adrenocorticotropic hormone (ACTH) have been confirmed by several groups of investigators.

During the time of their administration, these hormones have exerted a decidedly suppressive effect on the clinical and biochemical manifestations of rheumatoid arthritis. When the use of the hormones is discontinued symptoms recur rather promptly in most cases, but in several of our cases pronounced improvement has persisted for several (seven to 14) months. The optimal dosage and methods of administration of these hormones for the investigative management of a chronic disease such as rheumatoid arthritis remain to be determined. Several schemes are under investigation. Rather prolonged relief with minimal side effects has been provided in some cases by the continued use of small maintenance doses after the earlier use of larger suppressive doses.

Cortisone or pituitary adrenocorticotropic hormone generally abolishes quickly the manifestations of acute rheumatic fever. There is reason to believe that the lesions of acute rheumatic carditis also are suppressed, in consequence of which the prevention of certain chronic cardiac lesions may be anticipated with some confidence, especially if adequate hormonal usage during the acute rheumatic state is followed by prolonged chemoprophylaxis (for example, with penicillin given orally). The articular complications of disseminated lupus erythematosus and psoriasis are responsive to these hormones. Limited results were obtained in 2 cases of tuberculous arthritis.

These hormones are powerful agents which may affect many functions and tissues of the body besides those of joints and muscles. Their prolonged use, at least in certain doses, may produce certain undesirable effects. These side effects have, to date, been transient and reversible. Certain measures have been developed to minimize or control some of them, but these effects still constitute an important problem for further investigation. If control of the side effects is not adequate in any given case, smaller doses of the hormones should be used and patient and physician alike should be content with a reduced amount of symptomatic relief.

With the exception of 17-hydroxycorticosterone (compound F of Kendall), none of the currently available steroids chemically related to cortisone appears to have significant antirheumatic properties. The oral administration of one specially prepared extract of adrenal cortex containing compounds E (cortisone) and F produced appreciable relief in 1 case of rheumatoid arthritis and has lent support to the belief that cortisone, and perhaps also compound F, will be chemically effective when given orally.

The mode of action of cortisone and pituitary adrenocorticotropic hormone in rheumatic diseases is not yet known, but the hormones appear to provide to the tissues affected in these diseases a shieldlike buffer against a variety of irritants.

The results of recent and current investigative studies appear to provide justification for the impending restricted application of these hormones to the field of therapy, at least in certain acute rheumatic and articular conditions.

EFFECT OF PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) ON RHEUMATIC FEVER AND RHEUMATIC CARDITIS

BENEDICT F. MASSELL, M D
and
JOSEPH E. WARREN, M D
Boston

That cortisone and pituitary adrenocorticotropic hormone (ACTH) might be useful in the treatment of rheumatic fever was first suggested by Hench and his co-workers[1] in May, 1949, shortly after they had announced their observations on the remarkable effects of these hormones in rheumatoid arthritis.[2] Although more than a year has now elapsed, published data on the effects of these hormones on the clinical course of rheumatic fever are still limited.

Hench's original report[1] included three rheumatic fever patients treated at the Mayo Clinic with cortisone for periods of 21 to 37 days and one patient who had received pituitary adrenocorticotropic hormone for seven days at the time that the report was prepared. More recent publications from the Mayo Clinic[3] have included data on these same cases as well as on four additional cortisone-treated patients and three additional ACTH-treated patients. Elkinton and others[4] administered the latter agent to two patients with rheumatic fever but discontinued the hormone after only three days of treatment. McEwen and his associates[5] reported observations on three patients, one of whom was treated with pituitary adrenocorticotropic hormone alone and two of whom were treated with cortisone first and then with the other hormone. Therapy was continued for periods totaling 30 to 45 days. In a recent article, Thorn and co-workers[6] described the apparent response of a girl with severe rheumatic fever to pituitary adrenocorticotropic hormone administered for a total of only 72 hours.

Preliminary reports of our own experience with this hormone in rheumatic fever have already been published.[7] One of these reports,[7c] which includes detailed case histories of the first 10 patients, covers the period from May 17 to Oct. 23, 1949. During the interval which has elapsed from the latter date to the preparation of this more current report (June 10, 1950), 10 additional patients with definite rheumatic fever[8] have received pituitary adrenocorticotropic hormone therapy at the House of the Good Samaritan. The purpose of the present communication is to summarize our clinical observations on the entire series of 20 patients so treated

CLINICAL MATERIAL AND METHOD OF TREATMENT

The manifestations of rheumatic fever and carditis present in each of the 20 patients at the time pituitary adrenocorticotropic hormone therapy was begun are indicated in table 1. The duration of the rheumatic attack prior to the beginning of hormone treatment, the number of previous attacks of rheumatic fever, and the age and sex of the patients are summarized in table 2. It is evident from these data that nearly all of the important manifestations of rheumatic fever are represented by this clinical series and that the majority of the patients had severe rheumatic fever and a high degree of active rheumatic carditis.

To obtain information regarding the optimum method of applying pituitary adrenocorticotropic hormone[9] to the treatment of rheumatic fever, various dosage schedules have been tried. These variations in therapy include amount of drug in each individual dose, total daily amount, number of doses per day, number of days of treatment, and total amount administered throughout the period of therapy. In the majority of the patients the total daily dose of the hormone was gradually reduced as treatment progressed, but in some cases the daily amount was kept constant. Some of the more pertinent data relevant to treatment are summarized in table 3.

Read in the Symposium on ACTH and Cortisone before the Section on Experimental Medicine and Therapeutics at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950

From the House of the Good Samaritan (Children's Medical Center). This study was supported by grants from the Helen Hay Whitney Foundation and the National Heart Institute of the United States Public Health Service.

[1] Hench, P. S; Slocumb, C. H; Barnes, A. R.; Smith, H. L; Polley, H. F., and Kendall, E C: Effects of Adrenal Cortical Hormone 17-Hydroxy-11-Dehydrocorticosterone (Compound E) on Acute Phase of Rheumatic Fever: Preliminary Report, Proc. Staff Meet., Mayo Clin. **24:** 277 297 (May) 1949.

[2] Hench, P. S; Kendall, E. C.; Slocumb, C. H, and Polley, H. F.: Effect of Hormone of *Adrenal Cortex (17-Hydroxy-11-Dehydrocorticosterone:* Compound E) and of Pituitary Adrenocorticotropic Hormone on Rheumatoid Arthritis: Preliminary Report, Proc. Staff Meet., Mayo Clin **24:** 181-197 (April) 1949.

[3] Barnes, A. R., and Smith, H. L.: The Effects of the Administration of Cortisone and ACTH on Patients with Acute Rheumatic Fever, Mod. Concepts Cardiovas. Dis. **19:** 59 60 (Feb) 1950. Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Effects of Cortisone Acetate and Pituitary ACTH on Rheumatoid Arthritis, Rheumatic Fever and Certain Other Conditions: A Study in Clinical Physiology, Arch. Int. Med **85:** 545 666 (April) 1950

[4] Elkinton, J. R, and others: Effects of Pituitary Adrenocorticotropic Hormone (ACTH) Therapy, J. A. M. A. **141:** 1273-1279 (Dec 31) 1949

[5] McEwen, C., and others: The Effect of Cortisone and ACTH on Rheumatic Fever, Bull New York Acad. Med. **26:** 212-228 (April) 1950

[6] Thorn, G. W.; Forsham, P. H.; Frawley, T. F.; Hill, S. R, Jr, Roche, M.; Staehelin, D, and Wilson, D. L: The Clinical Usefulness of ACTH and Cortisone, New England J. Med. **242:** 783-793 (May 18) 1950; 824 834 (May 25) 1950; 865 872 (June 1) 1950

[7] (*a*) Massell, B. F.; Warren, J. E, and Sturgis, G. P.: Observations on Effects of ACTH in Patients with Rheumatic Fever and Rheumatic Carditis, in Mote, J. R.: Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 405-422. (*b*) Thorn, G. W.; Bayles, T. B.; Massell, B. F.; Forsham, P H.; Hill, S R, Jr.; Smith, S, III, and Warren, J. E.: Studies on the Relation of Pituitary-Adrenal Function to Rheumatic Disease, New England J. Med **241:** 529-537 (Oct. 6) 1949. (*c*) Massell, B. F., Warren, J. E; Sturgis, G P; Hall, B, and Craige, E.: Clinical Response of Rheumatic Fever and Acute Carditis to ACTH, ibid. **242:** 641-647 (April 27); 692-698 (May 4) 1950.

[8] Not included in this group is one patient with possibly complicating bronchiectasis and several patients in whom the clinical course has not sufficiently progressed for adequate evaluation.

[9] The pituitary adrenocorticotropic hormone used in these study supplied by Dr. John R. Mote of the Armour Laboratories, All doses are recorded in terms of milligrams of the Armour

To facilitate the collection of data needed for studies on the mechanism of hormonal influences in rheumatic fever, nearly all of the patients treated with pituitary adrenocorticotropic hormone were placed on a metabolic balance diet containing an average of 0.6 Gm. of sodium per day. In addition to the usual clinical observations, the study has been controlled by a variety of laboratory tests which have been described elsewhere.[7c]

Treatment is still being given to one patient (case 20) and was only recently discontinued in another (case 19). In the remaining 18 cases the period of follow-up since discontinuation of hormonal therapy has varied from seven weeks to 12 months.

Table 1.—*Manifestations of Rheumatic Fever and Carditis Present in Twenty Patients at Time Pituitary Adrenocorticotropic Hormone Therapy Was Begun*

Manifestations* in Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fever	X	X	X	X	X	X	X	..	X	X	..	X	X	X	X	X	X	..	..	X
Arthritis																				
Subjective	X	X	..	X	..	X	X	..	X	X	..	..	X	..	X	..	X	..	..	..
Objective	..	..	..	X	..	X	X	..	..	X	..	..	..	..	X	..	X	..	..	..
Nodules	X	..	X	..	..	..	..	..	X	..	..	X	X	..	..	..	..	..	..	..
Chorea	..	..	..	..	..	..	..	X	..	..	..	..	..	..	..	..	..	..	X	..
Gallop rhythm	X	X	X	..	..	..	X	..	..	..	..	X	X	..	..	..	..	..	..	..
Pericarditis	X	..	..	..	X	..	X	..	X	..	..	..	..	X	..	X	..	..	..	..
Congestive failure	..	X	X	..	X	..	..	..	..	X	..	..	X	..	..	..	..	X	..	..
Elevated sedimentation rate	X	X	..	X	X	X	X	X	X	X	X	X	..	X	X	X	X	X	..	X
Significant murmurs																				
Mitral systolic	X	X	X	X	X	..	X	X	X	X	X	X	X	X	X	X	X	X	..	X
Mitral diastolic	X	X	X	X	X	..	X	X	X	X	..	..	X	X	X	X	X	X	..	..
Aortic diastolic	X	X	..	..	..	..	X	..	X	X	..	..	..	X	X	..	X	X	..	..

---

* Letter X indicates presence of manifestation.

Table 2.—*Duration of Rheumatic Fever Attack Prior to Pituitary Adrenocorticotropic Hormone Therapy; Number of Previous Attacks; Duration of Rheumatic Fever After Beginning of Therapy and Duration of Follow-Up Since Discontinuation of Hormone*

Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Sex	F	F	F	F	F	F	M	M	M	M	F	F	M	F	F	M	M	F	F	F
Age in years	11	21	7	10	8	7	7	7	12	17	13	6	8	12	13	10	8	17	6	12
Number of previous attacks of rheumatic fever	0	6	0	2	0	0	0	0	0	2	0	0	0	1	1	1	1	2	0	0
Duration* of attack prior to therapy	30 D	51 D	80 D	12 D	32 D	7 D	6 D	89 D	54 D	30 D	52 D	150 D	183 D	15 D	31 D	20 D	10 D	3.5 Y	13 D	25 D
Duration* of active rheumatic fever after beginning of therapy																				
Based on clinical signs only	42 D	50 D	170 D	32 D	56 D	2 D	3 D	30 D	49 D	21 D	2 D	30 D	†	4 D	1 D	25 D	3 D	†	†	§
Based on laboratory and clinical signs	65	†	170	53	87	30	51	30	111	106	16	30	†	6	84	67	34	†	†	§
Duration* of follow-up after discontinuation of hormone	11 M	1 Y	11 M	11 M	9 M	11 M	11 M	10 M	8 M	7 M	10 M	8 M	3 D‡	4 M	4 M	3 M	7 W	3 M	8 D	§

---

* In indicating time D is used for days, W for weeks, M for months and Y for years.
† Indicates that signs of active rheumatic fever did not subside during the period of observation.
‡ This patient died of jugular thrombophlebitis.
§ Still receiving pituitary adrenocorticotropic hormone therapy.

INITIAL RESPONSE OF VARIOUS MANIFESTATIONS

The number of days after the beginning of pituitary adrenocorticotropic hormone therapy for the more important symptoms and signs of rheumatic fever to disappear in each of the 20 patients is indicated in table 4. Attention should be called to the fact that the figures in the table refer to the time for initial disappearance. Certain rheumatic manifestations reappeared in some cases usually when the agent was reduced in dosage or entirely omitted. This aspect of the problem is discussed below more fully. An instance of what is considered to be a good response to pituitary adrenocorticotropic hormone is illustrated by figure 1.

It is evident from the data in table 4 that of all symptoms and signs fever and polyarthritis came under control most rapidly. In most instances these two manifestations subsided within one or two days of therapy. Pericarditis usually became appreciably diminished or disappeared entirely within three to four days of hormonal treatment, but in three patients (cases 5, 9 and 16) nine to 14 days were required for complete subsidence. With regard to the response in case 9, it should be pointed out that after the first five days of therapy exhaustion of our supply of hormone necessitated discontinuing treatment temporarily during the succeeding five days.

In 4 of 5 patients with subcutaneous nodules the lesions became detectably smaller within seven to 10 days of the beginning of therapy and appeared to be totally absent by the end of two to seven weeks of treatment. In one patient (case 3) the nodules became smaller gradually and did not entirely disappear until about three weeks after termination of therapy. Furthermore, new nodules appeared shortly afterward on both forearms distal to the olecranon processes.

The erythrocyte sedimentation rate usually became significantly slower after one to five days of treatment and in the majority of patients reached a normal level within one to three weeks. In 4 patients (cases 5, 7, 15 and 17) the response was slower, and one to three months of therapy elapsed before normal readings were observed.

Only 2 of the patients in this series (cases 8 and 19) had chorea. In the first of these improvement during therapy was quite striking. Although the hormone was given for a total of only 10 days, at the end of this period the chorea, which had been moderately severe prior to treatment, had become mild. Thereafter and without further therapy the slight residual chorea gradually lessened and within another three weeks completely disappeared. The second patient, recently admitted to the hospital, had moderately severe chorea of nearly one month's duration. After 10 days of therapy with relatively large doses of the hormone, the chorea was no less severe than it had been before this treatment; therefore, in order to determine whether withdrawal of the hormone would have any influence on the choreiform motions, treatment was discontinued. It is too soon to evaluate the effect of this procedure.

TABLE 3.—*Pertinent Data Regarding Pituitary Adrenocorticotropic Hormone Dosage*

Case	1	2	3	4	5	6	7	8	9	10
Weight in Kg.	25.9	46.3	25.0	27.2	21.3	31.0	19.7	22.9	29.9	54.0
Type of treatment*	R	R	R	R	R	R	R	C	R	R
Entire period of therapy:										
Total days	52	39	40	46	100	31	31	11	68	49
Total amount in mg.	970	1,228	566	572	1,511	306	348	310	2,370	1,560
Average daily amount in mg.	18.6	31.5	14.2	12.4	15.1	9.9	11.2	28.3	34.8	31.8
Average daily amount in mg./Kg.	0.7	0.7	0.6	0.4	0.7	0.3	0.6	1.2	1.2	0.6
Initial period of therapy (before reduction in dosage):										
No. of days	4	3	11	10	3	3	3	11	4	3
No. of doses/day	4	4	4	4	4	4	4	3	4	3
No. of mg./dose	9.0	9.0	7.5	7.5	12.5	7.5	7.5	10.0	20.0	20.0
Total daily amount in mg.	36	36	30	30	50	30	30	30	80	60
Total daily amount in mg./Kg.	1.4	0.8	1.2	1.1	2.3	1.0	1.5	1.3	2.7	1.1
Case	11	12	13	14	15	16	17	18	19	20
Weight in Kg.	45.6	22.5	22.0	38.1	40.8	37.7	25.6	49.0	22.5	19.0
Type of treatment*	C	C	R	R	C	R	C	R	C	C
Entire period of therapy:										
Total days	4	27	81	33	35	37	37	51	10	28†
Total amount in mg.	190	1,050	1,079	494	520	700	358	1,520	540	280
Average daily amount in mg.	47.5	38.9	13.3	15.0	14.8	18.9	9.7	29.8	54.0	10.0
Average daily amount in mg./Kg.	1.0	1.7	0.6	0.4	0.4	0.5	0.4	0.6	2.4	0.5
Initial period of therapy (before reduction in dosage):										
No. of days	3	26	7	11	35	14	36	10	8	28†
No. of doses/day	4	4	4	3	3	3	3	3	4	3
No. of mg./dose	10.0	10.0	6.3	8.3	5.0	10.0	3.3	10.0	15.0	3.3
Total daily amount in mg.	40	40	25	25	15	30	10	30	60	10
Total daily amount in mg./Kg.	0.9	1.8	1.1	0.7	0.4	0.8	0.4	0.6	2.7	0.5

---

* C indicates constant daily amount of pituitary adrenocorticotropic hormone during period of therapy; R indicates daily amount gradually reduced during period of therapy.

† Treatment not yet discontinued.

TABLE 4.—*Days After Beginning of Therapy Required for First Subsidence of Manifestations of Rheumatic Fever* *

Manifestations in Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fever	1	1	..	1	2	1	1	..	1	1	..	..	..	1	1	1	1	..	..	1
Arthralgia	1	1	..	1	..	2	1	..	4	1	..	..	1	..	1	..	1	..	..	..
Objective arthritis	..	..	..	2	..	2	1	..	..	3	..	..	..	..	1	..	1	..	..	..
Pericardial friction rub	3	..	..	..	11	..	1	..	14	..	..	..	..	4	..	9	..	..	..	..
Nodules	45	..	†	..	..	..	..	..	50	..	..	20	14	..	..	..	..	..	..	..
Elevated sedimentation rate	17	22	..	20	87	15	34	6	17	8	16	11	..	6	56	56	10	..	..	†
Congestive failure	..	14	†	..	56	..	..	..	..	15	..	..	†	..	..	..	..	†	..	..
Chorea	..	..	..	..	..	..	..	30	..	..	..	..	..	..	..	..	..	..	†	..

---

* Figures refer to the number of days required for initial disappearance of manifestations; certain of these reappeared later. Instances in which subsidence of manifestation was not clearly associated with therapy are omitted.

† Manifestation did not completely subside during the period of observation.

Improvement in appetite and gain in weight with pituitary adrenocorticotropic hormone therapy was frequently impressive and was often remarkably prompt. Disappearance of moderate anemia in association with other signs of improvement was likewise noticeable in a number of cases. In several patients who had a decided sinus tachycardia there was considerable slowing of the heart rate soon after treatment was begun. In addition the hormone may also have played a role in the improvement of one patient with paroxysmal auricular tachycardia (case 11).

The influence of pituitary adrenocorticotropic hormone on congestive heart failure was somewhat variable; therefore it can best be described by considering separately each of the 6 patients in whom this manifestation of active carditis was present.

CASE 2.—A woman aged 21 had severe heart damage as the result of long-standing repetitive rheumatic fever. She had been on a maintenance dose of digitalis for some time. With her most recent rheumatic recurrence there developed severe congestion of the liver and sacral edema which failed to respond to a low sodium diet and frequent administration of a mercurial diuretic. During the first week of pituitary adrenocorticotropic hormone therapy the signs of congestion lessened slightly. Then, with temporary omission of hormone therapy for a period of three days (due to exhaustion of our supply) there was a decided diuresis accompanied with further striking improvement in the signs of congestive failure. When hormone therapy was resumed a satisfactory urinary output was maintained, and improvement continued so that by the fourteenth day after the initial dose of pituitary adrenocorticotropic hormone signs of congestive failure could not longer be detected. Thereafter the patient was able to get along well without the further administration of diuretics. Some of the pertinent features of this patient's clinical response to the hormone, including the urinary excretion of sodium, are illustrated in figure 2.

To facilitate the collection of data needed for studies on the mechanism of hormonal influences in rheumatic fever, nearly all of the patients treated with pituitary adrenocorticotropic hormone were placed on a metabolic balance diet containing an average of 0.6 Gm. of sodium per day. In addition to the usual clinical observations, the study has been controlled by a variety of laboratory tests which have been described elsewhere.[7c]

Treatment is still being given to one patient (case 20) and was only recently discontinued in another (case 19). In the remaining 18 cases the period of follow-up since discontinuation of hormonal therapy has varied from seven weeks to 12 months.

Table 1.—*Manifestations of Rheumatic Fever and Carditis Present in Twenty Patients at Time Pituitary Adrenocorticotropic Hormone Therapy Was Begun*

Manifestations* in Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fever	X	X	X	X	X	X	X	..	X	X	..	X	X	X	X	X	X	..	..	X
Arthritis																				
Subjective	X	X	..	X	..	X	X	..	X	X	..	..	X	..	X	..	X	..	..	..
Objective	..	..	..	X	..	X	X	..	..	X	..	..	..	..	X	..	X	..	..	..
Nodules	X	..	X	..	..	..	..	..	X	..	..	X	X	..	..	..	..	..	..	..
Chorea	..	..	..	..	..	..	..	X	..	..	..	..	..	..	..	..	..	..	X	..
Gallop rhythm	X	X	X	..	..	..	X	..	..	..	..	X	X	..	..	..	..	..	..	..
Pericarditis	X	..	..	..	X	..	X	..	X	..	..	..	..	X	..	X	..	..	..	..
Congestive failure	..	X	X	..	X	..	..	..	..	X	..	..	X	..	..	..	..	X	..	..
Elevated sedimentation rate	X	X	..	X	X	X	X	X	X	X	X	X	..	X	X	X	X	X	..	X
Significant murmurs																				
Mitral systolic	X	X	X	X	X	..	X	X	X	X	X	X	X	X	X	X	X	X	..	X
Mitral diastolic	X	X	X	X	X	..	X	X	X	X	..	..	X	X	X	X	X	X	..	..
Aortic diastolic	X	X	..	..	..	..	X	..	X	X	..	..	..	X	X	..	X	X	..	..

---

* Letter X indicates presence of manifestation.

Table 2.—*Duration of Rheumatic Fever Attack Prior to Pituitary Adrenocorticotropic Hormone Therapy; Number of Previous Attacks; Duration of Rheumatic Fever After Beginning of Therapy and Duration of Follow-Up Since Discontinuation of Hormone*

Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Sex	F	F	F	F	F	F	M	M	M	M	F	F	M	F	F	M	M	F	F	F
Age in years	11	21	7	10	8	7	7	7	12	17	13	6	8	12	13	10	8	17	6	12
Number of previous attacks of rheumatic fever	0	6	0	2	0	0	0	0	0	2	0	0	0	1	1	1	1	2	0	0
Duration* of attack prior to therapy	30 D	51 D	80 D	12 D	32 D	7 D	6 D	89 D	54 D	30 D	52 D	150 D	183 D	15 D	31 D	20 D	10 D	3.5 Y	13 D	25 D
Duration* of active rheumatic fever after beginning of therapy																				
Based on clinical signs only	42 D	50 D	170 D	32 D	56 D	2 D	3 D	30 D	49 D	21 D	2 D	30 D	†	4 D	1 D	25 D	3 D	†	†	§
Based on laboratory and clinical signs	65	†	170	53	87	30	51	30	111	106	16	30	†	6	84	67	34	†	†	§
Duration* of follow-up after discontinuation of hormone	11 M	1 Y	11 M	11 M	9 M	11 M	11 M	10 M	8 M	7 M	10 M	8 M	3 D‡	4 M	4 M	3 M	7 W	3 M	8 D	§

---

* In indicating time D is used for days, W for weeks, M for months and Y for years.

† Indicates that signs of active rheumatic fever did not subside during the period of observation.

‡ This patient died of jugular thrombophlebitis.

§ Still receiving pituitary adrenocorticotropic hormone therapy.

INITIAL RESPONSE OF VARIOUS MANIFESTATIONS

The number of days after the beginning of pituitary adrenocorticotropic hormone therapy for the more important symptoms and signs of rheumatic fever to disappear in each of the 20 patients is indicated in table 4. Attention should be called to the fact that the figures in the table refer to the time for initial disappearance. Certain rheumatic manifestations reappeared in some cases usually when the agent was reduced in dosage or entirely omitted. This aspect of the problem is discussed below more fully. An instance of what is considered to be a good response to pituitary adrenocorticotropic hormone is illustrated by figure 1.

It is evident from the data in table 4 that of all symptoms and signs fever and polyarthritis came under control most rapidly. In most instances these two manifestations subsided within one or two days of therapy. Pericarditis usually became appreciably diminished or disappeared entirely within three to four days of hormonal treatment, but in three patients (cases 5, 9 and 16) nine to 14 days were required for complete subsidence. With regard to the response in case 9, it should be pointed out that after the first five days of therapy exhaustion of our supply of hormone necessitated discontinuing treatment temporarily during the succeeding five days.

In 4 of 5 patients with subcutaneous nodules the lesions became detectably smaller within seven to 10 days of the beginning of therapy and appeared to be totally absent by the end of two to seven weeks of treatment. In one patient (case 3) the nodules became smaller gradually and did not entirely disappear until about three weeks after termination of therapy. Furthermore, new nodules appeared shortly afterward on both forearms distal to the olecranon processes.

The erythrocyte sedimentation rate usually became significantly slower after one to five days of treatment and in the majority of patients reached a normal level within one to three weeks. In 4 patients (cases 5, 7, 15 and 17) the response was slower, and one to three months of therapy elapsed before normal readings were observed.

Only 2 of the patients in this series (cases 8 and 19) had chorea. In the first of these improvement during therapy was quite striking. Although the hormone was given for a total of only 10 days, at the end of this period the chorea, which had been moderately severe prior to treatment, had become mild. Thereafter and without further therapy the slight residual chorea gradually lessened and within another three weeks completely disappeared. The second patient, recently admitted to the hospital, had moderately severe chorea of nearly one month's duration. After 10 days of therapy with relatively large doses of the hormone, the chorea was no less severe than it had been before this treatment; therefore, in order to determine whether withdrawal of the hormone would have any influence on the choreiform motions, treatment was discontinued. It is too soon to evaluate the effect of this procedure.

Improvement in appetite and gain in weight with pituitary adrenocorticotropic hormone therapy was frequently impressive and was often remarkably prompt. Disappearance of moderate anemia in association with other signs of improvement was likewise noticeable in a number of cases. In several patients who had a decided sinus tachycardia there was considerable slowing of the heart rate soon after treatment was begun. In addition the hormone may also have played a role in the improvement of one patient with paroxysmal auricular tachycardia (case 11).

The influence of pituitary adrenocorticotropic hormone on congestive heart failure was somewhat variable; therefore it can best be described by considering separately each of the 6 patients in whom this manifestation of active carditis was present.

CASE 2.—A woman aged 21 had severe heart damage as the result of long-standing repetitive rheumatic fever. She had been on a maintenance dose of digitalis for some time. With her most recent rheumatic recurrence there developed severe congestion of the liver and sacral edema which failed to respond to a low sodium diet and frequent administration of a mercurial diuretic. During the first week of pituitary adrenocorticotropic hormone therapy the signs of congestion lessened slightly. Then, with temporary omission of hormone therapy for a period of three days (due to exhaustion of our supply) there was a decided diuresis accompanied with further striking improvement in the signs of congestive failure. When hormone therapy was resumed a satisfactory urinary output was maintained, and improvement continued so that by the fourteenth day after the initial dose of pituitary adrenocorticotropic hormone signs of congestive failure could not longer be detected. Thereafter the patient was able to get along well without the further administration of diuretics. Some of the pertinent features of this patient's clinical response to the hormone, including the urinary excretion of sodium, are illustrated in figure 2.

TABLE 3.—*Pertinent Data Regarding Pituitary Adrenocorticotropic Hormone Dosage*

Case	1	2	3	4	5	6	7	8	9	10
Weight in Kg	25.9	46.3	25.0	27.2	21.3	31.0	19.7	22.9	29.9	54.0
Type of treatment*	R	R	R	R	R	R	R	C	R	R
Entire period of therapy:										
Total days	52	39	40	46	100	31	31	11	68	49
Total amount in mg	970	1,228	566	572	1,511	306	348	310	2,370	1,560
Average daily amount in mg	18.6	31.5	14.2	12.4	15.1	9.9	11.2	28.3	34.8	31.8
Average daily amount in mg./Kg	0.7	0.7	0.6	0.4	0.7	0.3	0.6	1.2	1.2	0.6
Initial period of therapy (before reduction in dosage):										
No. of days	4	3	11	10	3	3	3	11	4	3
No. of doses/day	4	4	4	4	4	4	4	3	4	3
No. of mg./dose	9.0	9.0	7.5	7.5	12.5	7.5	7.5	10.0	20.0	20.0
Total daily amount in mg	36	36	30	30	50	30	30	30	80	60
Total daily amount in mg./Kg	1.4	0.8	1.2	1.1	2.3	1.0	1.5	1.3	2.7	1.1
Case	11	12	13	14	15	16	17	18	19	20
Weight in Kg	45.6	22.5	22.0	38.1	40.8	37.7	25.6	49.0	22.5	19.0
Type of treatment*	C	C	R	R	C	R	C	R	C	C
Entire period of therapy:										
Total days	4	27	81	33	35	37	37	51	10	28†
Total amount in mg	190	1,050	1,079	494	520	700	358	1,520	540	280
Average daily amount in mg	47.5	38.9	13.3	15.0	14.8	18.9	9.7	29.8	54.0	10.0
Average daily amount in mg./Kg	1.0	1.7	0.6	0.4	0.4	0.5	0.4	0.6	2.4	0.5
Initial period of therapy (before reduction in dosage):										
No. of days	3	26	7	11	35	14	36	10	8	28†
No. of doses/day	4	4	4	3	3	3	3	3	4	3
No. of mg./dose	10.0	10.0	6.3	8.3	5.0	10.0	3.3	10.0	15.0	3.3
Total daily amount in mg	40	40	25	25	15	30	10	30	60	10
Total daily amount in mg./Kg	0.9	1.8	1.1	0.7	0.4	0.8	0.4	0.6	2.7	0.5

---

* C indicates constant daily amount of pituitary adrenocorticotropic hormone during period of therapy; R indicates daily amount gradually reduced during period of therapy.

† Treatment not yet discontinued.

TABLE 4.—*Days After Beginning of Therapy Required for First Subsidence of Manifestations of Rheumatic Fever* *

Manifestations in Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fever	1	1	..	1	2	1	1	..	1	1	..	..	..	1	1	1	1	..	..	1
Arthralgia	1	1	..	1	..	2	1	..	4	1	..	..	1	..	1	..	1	..	..	..
Objective arthritis	..	..	..	2	..	2	1	..	..	3	..	..	..	..	1	..	1	..	..	..
Pericardial friction rub	3	..	..	..	11	..	1	..	14	..	..	..	..	4	..	9	..	..	..	..
Nodules	45	..	†	..	..	..	..	..	50	..	..	20	14	..	..	..	..	..	..	..
Elevated sedimentation rate	17	22	..	20	87	15	34	6	17	8	16	11	..	6	56	56	10	..	..	†
Congestive failure	..	14	†	..	56	..	..	..	..	15	..	..	†	..	..	..	..	†	..	..
Chorea	..	..	..	..	..	..	..	30	..	..	..	..	..	..	..	..	..	..	†	..

---

* Figures refer to the number of days required for initial disappearance of manifestations; certain of these reappeared later. Instances in which subsidence of manifestation was not clearly associated with therapy are omitted.

† Manifestation did not completely subside during the period of observation.

Case 3.—A girl 7 years of age had severe rheumatic carditis and congestive failure, the latter condition being indicated by the presence of a gallop rhythm, an enlarged tender liver, cough and orthopnea. Prior to the administration of pituitary adrenocorticotropic hormone the patient had been on a low sodium diet but had not received other cardiac therapy. During the first three days of hormone treatment the signs of congestion of the liver and lungs increased to such an extent that a daily mercurial diuretic was added to the therapeutic regimen. Thereafter the signs of congestion lessened considerably, so that three weeks after the beginning of hormone treatment the only residual sign possibly indicative of congestive failure was a liver edge palpable just slightly below the costal margin. Furthermore, administration of the mercurial diuretic was omitted two weeks later without the development of any increase in the signs of congestion.

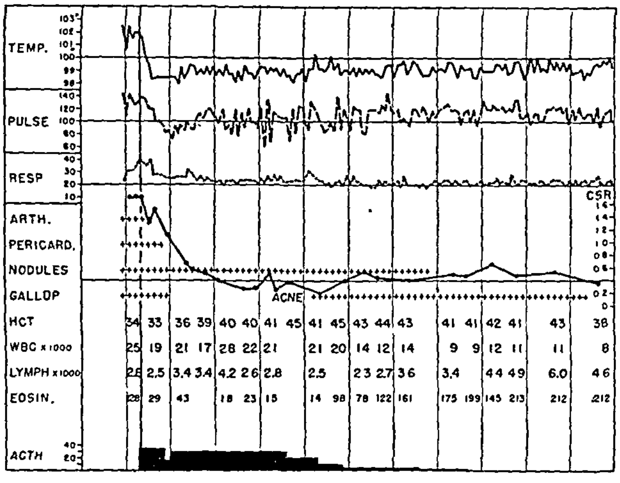


Fig. 1 (case 1).—Chart showing clinical response of patient to pituitary adrenocorticotropic hormone (ACTH) therapy. Light vertical lines indicate weekly intervals. The heavy vertical line indicates the beginning of therapy. Note transient rise in sedimentation rate when the hormone was reduced to low dosage. In column at left HCT indicates the hematocrit level.

Case 5.—A girl 8 years of age had severe rheumatic carditis and pronounced congestion of the liver. In spite of a low sodium diet the first four days of pituitary adrenocorticotropic hormone therapy were accompanied with an increase in hepatic congestion and a decided increase in the respiratory rate. With the daily administration of a mercurial diuretic the signs of congestive failure regressed, and one month after the first injection of the hormone the patient was sufficiently improved to allow discontinuation of diuretic therapy. Although slight liver enlargement persisted, there was no doubt that the signs of congestion were considerably improved in comparison to those present prior to hormone treatment.

Case 10.—A boy aged 17 had severe active rheumatic fever, long-standing rheumatic heart disease and auricular fibrillation. Prior to pituitary adrenocorticotropic hormone therapy, in spite of full digitalization, he was in severe congestive failure with hepatic enlargement. Digitalis was withheld, and on the sixth hospital day hormone therapy was begun. By the eighteenth hospital day (twelfth day of the hormone) the heart rate had increased to 150 beats per minute; the liver had become larger and was quite tender; there was slight sacral edema, and the patient was obviously orthopneic. Consequently the patient was rapidly redigitalized by the intravenous route with crystalline lanatoside C. This therapeutic procedure was followed by a prompt slowing of the heart rate and a rapid disappearance of all signs of congestion. Furthermore, with a maintenance oral dose of digitoxin the heart rate remained well controlled and there was no recurrence of congestive failure.

Case 13.—A boy 8 years of age had active rheumatic fever of six months' duration and chronic hepatic congestion of at least three and one half months' duration. With pituitary adrenocorticotropic hormone and diuretic therapy the size of his liver diminished somewhat but nevertheless continued to remain obviously enlarged. Furthermore, the patient finally died after three months of hormone treatment as the result of bilateral thrombophlebitis of the internal jugular vein, and autopsy revealed the presence of chronic passive congestion of the liver.

Case 18.—A girl aged 17 had smoldering active rheumatic fever which had persisted ever since her third frank attack of acute rheumatic fever three and one half years previously. Increasing sinus tachycardia, development of frequent attacks of paroxysmal auricular tachycardia and enlargement of the liver gave evidence of progressive cardiac damage. With pituitary adrenocorticotropic hormone therapy the signs of hepatic congestion increased, but the situation was reasonably well controlled by the use of diuretics and a low sodium diet. After the discontinuation of hormone therapy, even though a low sodium diet and frequent administration of diuretics were continued, definite signs of hepatic congestion persisted.

The final rheumatic manifestation to be considered is the auscultatory signs of heart disease. Such signs were present in 18 of the 20 patients in this series. In most instances the significant murmurs were due to long-standing valvular damage, and, as might be expected, they were not influenced by pituitary adrenocorticotropic hormone therapy. But in 5 cases significant murmurs, which presumably were of relatively recent origin, regressed in association with other clinical signs of improvement and finally disappeared completely within several weeks to several months. The auscultatory signs which disappeared included a moderately loud mitral systolic murmur in one instance, mitral middiastolic murmurs in three instances and faint to moderately intense aortic diastolic murmurs in four instances. In spite of the disappearance of some murmurs, other murmurs have given ample evidence of persistent heart disease in three of the five patients (cases 4, 14 and 15). However, two of the five patients (cases 1 and 7), during a follow-up period of about 11 months, have remained entirely free of signs of residual cardiac damage.

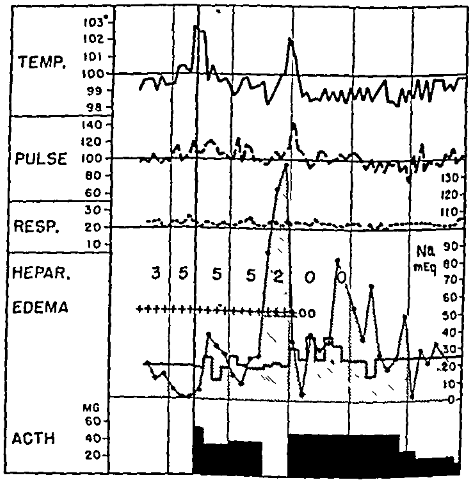


Fig. 2 (case 2).—Chart showing effect of pituitary adrenocorticotropic hormone in a patient with congestive failure. The patient was on a constant regimen of digitoxin 0.1 mg. and a mercurial diuretic 1 cc. per day. Light vertical lines indicate weekly intervals. The heavy vertical line indicates the beginning of therapy. The shaded area indicates urinary excretion of sodium in milliequivalents per day. The heavy line through the shaded area [illegible] per day. Note the rise in temperature and the [illegible] when the hormone was temporarily discontinued after eight days of therapy.

WITHDRAWAL EFFECTS

When pituitary adrenocorticotropic hormone was withdrawn abruptly early in the course of treatment of patients with acute rheumatic fever an almost immediate rise in temperature and return of symptoms occurred, a result that was not surprising. Of possibly greater significance was the reaction to gradual reduction in dosage and final omission of therapy. In some instances the procedure was not associated with any untoward effect. In others, however, relapses of varying severity were observed. The interesting feature of these late withdrawal reactions is that in a number of instances fever, joint pains and rise in sedimentation rate again subsided and failed to reappear even though the reduced hormone dosage was kept constant or the hormone was omitted altogether. As might be expected, elevation of the sedimentation rate subsided more slowly than did the clinical manifestations of these withdrawal reactions. In general, clinical withdrawal symptoms lasted for only three to 10 days, but rebound elevation of the sedimentation rate did not subside entirely for periods varying from one week to three months. A withdrawal reaction involving only the sedimentation rate is illustrated in figure 1.

The effect of withdrawing pituitary adrenocorticotropic hormone in one patient (case 18) is of especial interest and worthy of further consideration. This patient is the girl aged 17 to whom reference has already been made in connection with the effect of the hormone on congestive heart failure. She had had persistent smoldering active rheumatic fever for about three and one half years prior to therapy, but during this period she did not have any fever. When after seven weeks of treatment the dose was reduced to 10 mg. per day and a little later omitted entirely, fever developed with the patient's oral temperatures reaching as high as 103.5 F. During the next 10 weeks fever persisted except for varying intervals when the patient was treated with aspirin (acetylsalicylic acid), ascorbic acid in large doses or more pituitary adrenocorticotropic hormone. All antirheumatic therapy was finally omitted a little over two weeks ago, and so far the temperature has remained normal. A careful search has been made for possible causes for the fever, unrelated to rheumatic fever, but so far none has been found; therefore it seems quite possible, in spite of the lack of other obviously rheumatic manifestations, that the febrile withdrawal reaction in this patient represents a recrudescence of rheumatic fever.

UNTOWARD REACTIONS

From the previous discussion of the effect of pituitary adrenocorticotropic hormone on congestive heart failure it is evident that in a number of instances this condition was aggravated during the early period of hormone therapy. The tendency of the drug to cause water retention may in turn be due to its sodium-retaining effect or in part to a direct effect on the kidneys of contaminating antidiuretic principles in the hormonal preparation. Whatever the cause, the effect constitutes a distinct risk for the patient with severe carditis. Fortunately in our patients aggravation of congestive failure was adequately controlled by the use of diuretics and a diet exceedingly low in sodium.

The only other serious untoward reaction which can be reasonably attributed to pituitary adrenocorticotropic hormone therapy in this series of 20 patients is a single instance of severe mental depression. This latter condition developed in a woman aged 21 (case 2) after treatment for about one month but disappeared again one month after discontinuation of hormone treatment.

One patient with severe active carditis and chronic congestive failure (case 13) was treated with the hormone in gradually reduced dosage for about three months. Toward the end of this period, while he was receiving only 4 mg. per day, there developed bilateral thrombophlebitis of the internal jugular veins and he died shortly thereafter. Although the possibility must be considered that the hormone may have played a role in the development of this fatal complication, other contributory factors to be considered are active rheumatic fever, congestive failure with venous stasis and the mercurial diuretic which was administered frequently in an attempt to combat the congestive failure.

Other relatively minor side effects from pituitary adrenocorticotropic hormone were transient headache in two cases, slight striae in two cases, acne in seven cases and development of varying degrees of roundness of the face in eight cases. The latter two manifestations usually became apparent during the second to fourth week of treatment and lessened gradually after discontinuation of therapy. In eight patients there developed no side reactions whatsoever. Significant elevation of the blood sugar level, glycosuria and hypertension were not observed in any of the 20 patients of this series.

THERAPEUTIC WORTH OF THE HORMONE

The prompt reduction in fever, the rapid disappearance of joint symptoms and the other immediate effects of pituitary adrenocorticotropic hormone therapy (indicated in table 4) which have already been discussed are extremely impressive. It must be pointed out, however, that the assessment of antirheumatic agents should not be based on immediate effects alone. If a drug is to have real value in the treatment of rheumatic fever it must do one or more of the following things: (1) shorten the course of the attack of rheumatic fever; (2) suppress active carditis, and (3) prevent or reduce residual cardiac damage.

Data relative to duration of the observed attacks of rheumatic fever in the first 19 patients of this series in whom hormone therapy has been completed are presented in table 2. The attacks were not considered to have been terminated until the effects of the withdrawal reactions, in those cases in which such reactions occurred, also subsided. Duration of active rheumatic fever is recorded in the table in two ways: (1) duration of clinical manifestations without regard to laboratory observations, and (2) total duration of rheumatic activity based on both clinical and laboratory results, especially the erythrocyte sedimentation rate.

One patient (case 19) with moderately severe chorea failed to show any improvement after ten days of therapy with large doses of pituitary adrenocorticotropic hormone. Another patient (case 13) died of a complicating jugular thrombophlebitis after about three months of therapy. A third patient (case 18) with previous persistent low grade rheumatic fever has continued to have active rheumatic fever in spite of therapy. As has already been indicated in a previous discussion, it is even possible in this case that the rheumatic process has actually increased in severity since discontinuation of the course of pituitary adrenocorticotropic hormone. A fourth patient (case 3), although finally recovered from rheumatic fever, must be considered a therapeutic failure because she did not seem to improve during the period of hormone treatment.

Of the remaining 15 patients final clinical recovery was observed in five patients within only one week of hormone therapy, in six patients within two to four weeks after the beginning of treatment and in four patients not until six to eight weeks after the first injection of the hormone. If the analysis is done on the basis of laboratory tests, particularly the erythrocyte

Case 3.—A girl 7 years of age had severe rheumatic carditis and congestive failure, the latter condition being indicated by the presence of a gallop rhythm, an enlarged tender liver, cough and orthopnea. Prior to the administration of pituitary adrenocorticotropic hormone the patient had been on a low sodium diet but had not received other cardiac therapy. During the first three days of hormone treatment the signs of congestion of the liver and lungs increased to such an extent that a daily mercurial diuretic was added to the therapeutic regimen. Thereafter the signs of congestion lessened considerably, so that three weeks after the beginning of hormone treatment the only residual sign possibly indicative of congestive failure was a liver edge palpable just slightly below the costal margin. Furthermore, administration of the mercurial diuretic was omitted two weeks later without the development of any increase in the signs of congestion.

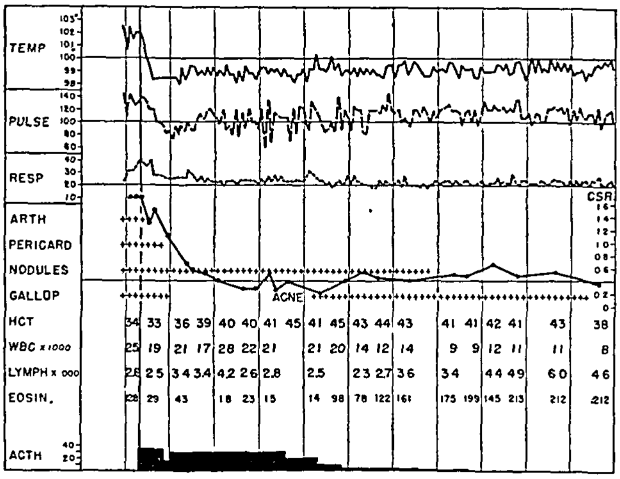


Fig 1 (case 1).—Chart showing clinical response of patient to pituitary adrenocorticotropic hormone (ACTH) therapy. Light vertical lines indicate weekly intervals The heavy vertical line indicates the beginning of therapy. Note transient rise in sedimentation rate when the hormone was reduced to low dosage. In column at left HCT indicates the hematocrit level

Case 5.—A girl 8 years of age had severe rheumatic carditis and pronounced congestion of the liver. In spite of a low sodium diet the first four days of pituitary adrenocorticotropic hormone therapy were accompanied with an increase in hepatic congestion and a decided increase in the respiratory rate. With the daily administration of a mercurial diuretic the signs of congestive failure regressed, and one month after the first injection of the hormone the patient was sufficiently improved to allow discontinuation of diuretic therapy. Although slight liver enlargement persisted, there was no doubt that the signs of congestion were considerably improved in comparison to those present prior to hormone treatment.

Case 10.—A boy aged 17 had severe active rheumatic fever, long-standing rheumatic heart disease and auricular fibrillation Prior to pituitary adrenocorticotropic hormone therapy, in spite of full digitalization, he was in severe congestive failure with hepatic enlargement. Digitalis was withheld, and on the sixth hospital day hormone therapy was begun. By the eighteenth hospital day (twelfth day of the hormone) the heart rate had increased to 150 beats per minute; the liver had become larger and was quite tender; there was slight sacral edema, and the patient was obviously orthopneic. Consequently the patient was rapidly redigitalized by the intravenous route with crystalline lanatoside C. This therapeutic procedure was followed by a prompt slowing of the heart rate and a rapid disappearance of all signs of congestion. Furthermore, with a maintenance oral dose of digitoxin the heart rate remained well controlled and there was no recurrence of congestive failure.

Case 13.—A boy 8 years of age had active rheumatic fever of six months' duration and chronic hepatic congestion of at least three and one half months' duration. With pituitary adrenocorticotropic hormone and diuretic therapy the size of his liver diminished somewhat but nevertheless continued to remain obviously enlarged. Furthermore, the patient finally died after three months of hormone treatment as the result of bilateral thrombophlebitis of the internal jugular vein, and autopsy revealed the presence of chronic passive congestion of the liver.

Case 18.—A girl aged 17 had smoldering active rheumatic fever which had persisted ever since her third frank attack of acute rheumatic fever three and one half years previously Increasing sinus tachycardia, development of frequent attacks of paroxysmal auricular tachycardia and enlargement of the liver gave evidence of progressive cardiac damage With pituitary adrenocorticotropic hormone therapy the signs of hepatic congestion increased, but the situation was reasonably well controlled by the use of diuretics and a low sodium diet After the discontinuation of hormone therapy, even though a low sodium diet and frequent administration of diuretics were continued, definite signs of hepatic congestion persisted

The final rheumatic manifestation to be considered is the auscultatory signs of heart disease. Such signs were present in 18 of the 20 patients in this series In most instances the significant murmurs were due to long-standing valvular damage, and, as might be expected, they were not influenced by pituitary adrenocorticotropic hormone therapy. But in 5 cases significant murmurs, which presumably were of relatively recent origin, regressed in association with other clinical signs of improvement and finally disappeared completely within several weeks to several months. The auscultatory signs which disappeared included a moderately loud mitral systolic murmur in one instance, mitral middiastolic murmurs in three instances and faint to moderately intense aortic diastolic murmurs in four instances. In spite of the disappearance of some murmurs, other murmurs have given ample evidence of persistent heart disease in three of the five patients (cases 4, 14 and 15). However, two of the five patients (cases 1 and 7), during a follow-up period of about 11 months, have remained entirely free of signs of residual cardiac damage.

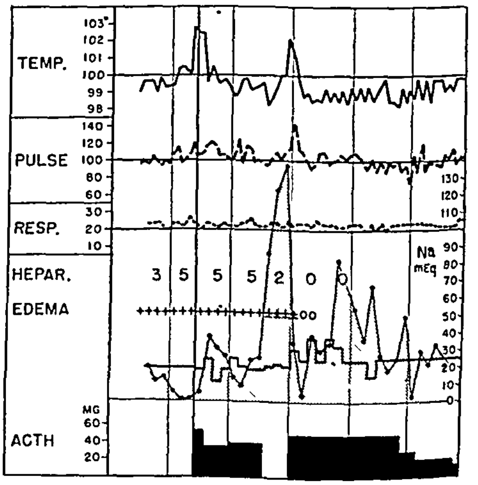


Fig 2 (case 2).—Chart showing effect of pituitary adrenocorticotropic hormone in a patient with congestive failure The patient was on a constant regimen of digitoxin 0.1 mg and a mercurial diuretic 1 cc per day Light vertical lines indicate weekly intervals. The heavy vertical line indicates the beginning of therapy. The shaded area indicates urinary excretion of sodium in milliequivalents per day. The heavy line through the shaded area indicates sodium intake per day. Note the rise in temperature and the decided sodium diuresis when the hormone was temporarily discontinued after eight days of therapy.

WITHDRAWAL EFFECTS

When pituitary adrenocorticotropic hormone was withdrawn abruptly early in the course of treatment of patients with acute rheumatic fever an almost immediate rise in temperature and return of symptoms occurred, a result that was not surprising. Of possibly greater significance was the reaction to gradual reduction in dosage and final omission of therapy. In some instances the procedure was not associated with any untoward effect. In others, however, relapses of varying severity were observed. The interesting feature of these late withdrawal reactions is that in a number of instances fever, joint pains and rise in sedimentation rate again subsided and failed to reappear even though the reduced hormone dosage was kept constant or the hormone was omitted altogether. As might be expected, elevation of the sedimentation rate subsided more slowly than did the clinical manifestations of these withdrawal reactions. In general, clinical withdrawal symptoms lasted for only three to 10 days, but rebound elevation of the sedimentation rate did not subside entirely for periods varying from one week to three months. A withdrawal reaction involving only the sedimentation rate is illustrated in figure 1.

The effect of withdrawing pituitary adrenocorticotropic hormone in one patient (case 18) is of especial interest and worthy of further consideration. This patient is the girl aged 17 to whom reference has already been made in connection with the effect of the hormone on congestive heart failure. She had had persistent smoldering active rheumatic fever for about three and one half years prior to therapy, but during this period she did not have any fever. When after seven weeks of treatment the dose was reduced to 10 mg. per day and a little later omitted entirely, fever developed with the patient's oral temperatures reaching as high as 103.5 F. During the next 10 weeks fever persisted except for varying intervals when the patient was treated with aspirin (acetylsalicylic acid), ascorbic acid in large doses or more pituitary adrenocorticotropic hormone. All antirheumatic therapy was finally omitted a little over two weeks ago, and so far the temperature has remained normal. A careful search has been made for possible causes for the fever, unrelated to rheumatic fever, but so far none has been found; therefore it seems quite possible, in spite of the lack of other obviously rheumatic manifestations, that the febrile withdrawal reaction in this patient represents a recrudescence of rheumatic fever.

UNTOWARD REACTIONS

From the previous discussion of the effect of pituitary adrenocorticotropic hormone on congestive heart failure it is evident that in a number of instances this condition was aggravated during the early period of hormone therapy. The tendency of the drug to cause water retention may in turn be due to its sodium-retaining effect or in part to a direct effect on the kidneys of contaminating antidiuretic principles in the hormonal preparation. Whatever the cause, the effect constitutes a distinct risk for the patient with severe carditis. Fortunately in our patients aggravation of congestive failure was adequately controlled by the use of diuretics and a diet exceedingly low in sodium.

The only other serious untoward reaction which can be reasonably attributed to pituitary adrenocorticotropic hormone therapy in this series of 20 patients is a single instance of severe mental depression. This latter condition developed in a woman aged 21 (case 2) after treatment for about one month but disappeared again one month after discontinuation of hormone treatment.

One patient with severe active carditis and chronic congestive failure (case 13) was treated with the hormone in gradually reduced dosage for about three months. Toward the end of this period, while he was receiving only 4 mg. per day, there developed bilateral thrombophlebitis of the internal jugular veins and he died shortly thereafter. Although the possibility must be considered that the hormone may have played a role in the development of this fatal complication, other contributory factors to be considered are active rheumatic fever, congestive failure with venous stasis and the mercurial diuretic which was administered frequently in an attempt to combat the congestive failure.

Other relatively minor side effects from pituitary adrenocorticotropic hormone were transient headache in two cases, slight striae in two cases, acne in seven cases and development of varying degrees of roundness of the face in eight cases. The latter two manifestations usually became apparent during the second to fourth week of treatment and lessened gradually after discontinuation of therapy. In eight patients there developed no side reactions whatsoever. Significant elevation of the blood sugar level, glycosuria and hypertension were not observed in any of the 20 patients of this series.

THERAPEUTIC WORTH OF THE HORMONE

The prompt reduction in fever, the rapid disappearance of joint symptoms and the other immediate effects of pituitary adrenocorticotropic hormone therapy (indicated in table 4) which have already been discussed are extremely impressive. It must be pointed out, however, that the assessment of antirheumatic agents should not be based on immediate effects alone. If a drug is to have real value in the treatment of rheumatic fever it must do one or more of the following things: (1) shorten the course of the attack of rheumatic fever; (2) suppress active carditis, and (3) prevent or reduce residual cardiac damage.

Data relative to duration of the observed attacks of rheumatic fever in the first 19 patients of this series in whom hormone therapy has been completed are presented in table 2. The attacks were not considered to have been terminated until the effects of the withdrawal reactions, in those cases in which such reactions occurred, also subsided. Duration of active rheumatic fever is recorded in the table in two ways: (1) duration of clinical manifestations without regard to laboratory observations, and (2) total duration of rheumatic activity based on both clinical and laboratory results, especially the erythrocyte sedimentation rate.

One patient (case 19) with moderately severe chorea failed to show any improvement after ten days of therapy with large doses of pituitary adrenocorticotropic hormone. Another patient (case 13) died of a complicating jugular thrombophlebitis after about three months of therapy. A third patient (case 18) with previous persistent low grade rheumatic fever has continued to have active rheumatic fever in spite of therapy. As has already been indicated in a previous discussion, it is even possible in this case that the rheumatic process has actually increased in severity since discontinuation of the course of pituitary adrenocorticotropic hormone. A fourth patient (case 3), although finally recovered from rheumatic fever, must be considered a therapeutic failure because she did not seem to improve during the period of hormone treatment.

Of the remaining 15 patients final clinical recovery was observed in five patients within only one week of hormone therapy, in six patients within two to four weeks after the beginning of treatment and in four patients not until six to eight weeks after the first injection of the hormone. If the analysis is done on the basis of laboratory tests, particularly the erythrocyte sedimentation rate, as well as clinical manifestations, the time which elapsed between the initial dose of pituitary adrenocorticotropic hormone and apparent complete recovery was one to two weeks in two patients, four weeks in four patients, one to two months in four patients, and two to four months in four patients.

One patient (case 2), the woman aged 21 to whom reference has been previously made, was observed in her seventh attack of rheumatic fever and was treated with the hormone after she had been extremely ill for about seven weeks. Her sedimentation rate had been observed frequently to be slightly elevated prior to the onset of the last rheumatic recurrence. The patient made an excellent initial response to therapy, and all clinical manifestations completely subsided about seven weeks after she received the first dose of the hormone. However, during a 12 month follow-up since completion of treatment her sedimentation rate has continued at a slightly elevated level, a level comparable to that which had been present prior to her last recurrence of rheumatic fever.

Returning now to the question whether or not pituitary adrenocorticotropic hormone shortened the course of the rheumatic fever attacks, it is our impression from the data presented here that, in spite of obvious therapeutic failure in four instances, the duration of the rheumatic process in many of the patients was considerably less than it would have been without therapy. This impression is particularly strong when we assess the course of the hormone-treated patients in the light of our previous experience at the House of the Good Samaritan with patients whose illnesses have been of comparable severity. Nevertheless, it should be emphasized that it is strictly an impression. The well known variability of rheumatic fever even when it is uninfluenced by therapy, the variable course of the disease in the patients treated with pituitary adrenocorticotropic hormone and the relatively small number of patients so treated necessitate postponement of final judgment until there has been an opportunity to observe the effect of the hormone on a large number of patients with rheumatic fever and to compare the clinical course of these patients with that of an adequate group of controls.[10]

In regard to the second criterion of antirheumatic activity, namely, the suppression of active carditis, final judgment must also be postponed until our experience has been more extensive. Nevertheless there are indications from our data that active carditis was actually suppressed by pituitary adrenocorticotropic hormone in at least some of the patients. These indications are as follows:

1. *Rapid Disappearance of Signs of Pericarditis.*—This phenomenon was observed in six patients (see table 4).

2. *Regression and Disappearance of Significant Murmurs.*—These changes were observed in five early cases.

3. *Effect on Congestive Heart Failure.*—The fluid-retaining effect of pituitary adrenocorticotropic hormone and the consequent risk of increasing congestive failure, especially early in the course of treatment, has already been discussed. Nevertheless, the severity of congestive failure in four of the six patients with this manifestation was notably diminished after two to four weeks of hormone treatment. Since active carditis plays a primary role in the production of congestive failure in young rheumatic fever patients, it is reasonable to believe that the observed improvement in congestive manifestations reflected a reduction in the severity of carditis.

4. *Effect on Subcutaneous Nodules.*—The apparent suppression by pituitary adrenocorticotropic hormone of this proliferative rheumatic lesion in four patients suggests that the hormone may have a similar effect on the myocardial lesions which in microscopic architecture often closely resemble subcutaneous nodules.

5. *Necropsy Observations in One Patient Who Died of Jugular Thrombophlebitis.*—Microscopic examination of the myocardium and endocardium revealed areas consistent with a subacute or healing process, but Aschoff bodies were not observed and fibrinoid changes were minimal.

The third and final criterion to be considered in the assessment of pituitary adrenocorticotropic hormone is whether it reduces or prevents residual heart damage. In many respects this effect is intimately related to the effect on active carditis because it seems reasonable to believe that if the inflammatory process in the heart can be suppressed residual damage to the heart can also be prevented or at least reduced. Therefore such observations as those outlined in connection with the problem of carditis lead us to hope that the hormone may also prevent heart damage, especially if treatment can be instituted early.

Among the first 18 patients, all of whom we had the opportunity to observe for one month or longer after the discontinuation of hormone therapy, there was only one patient (case 6) in whom significant murmurs were not heard during the acute attack. In two other patients (cases 1 and 7) obviously significant murmurs heard early in the course of the illness subsequently disappeared. All three patients have continued to have apparently normal hearts during a follow-up period of 11 months. However, in view of the occasional insidious development of valvular disease several years after an original attack of rheumatic fever, a considerably longer period of follow-up study will be necessary before we can be assured that the hearts of these three patients have escaped damage. Furthermore, final assessment of pituitary adrenocorticotropic hormone therapy in regard to the prevention of residual heart damage will require observations of many additional early cases and a careful follow-up study of such cases.

In general, then, final conclusions are not yet warranted with regard to the therapeutic worth of pituitary adrenocorticotropic hormone as an antirheumatic agent. Nevertheless, there are strongly suggestive indications that in some cases the hormone may be effective in shortening the course of rheumatic fever attacks and in suppressing active carditis. There is also reason to be hopeful that such therapy when given early in an attack of rheumatic fever may prevent or decrease residual heart damage.

From our limited data we have not been able to correlate the results of treatment with the dosage of the hormone. There are suggestive indications, however, that there may be some correlation of results with the duration of the rheumatic process when pituitary adrenocorticotropic hormone therapy is begun. We have the impression that early acute attacks of the disease may be more readily controlled than attacks which have already been in progress for many months before treatment is instituted.[11]

MECHANISM OF HORMONAL INFLUENCES IN RHEUMATIC FEVER

It seems quite likely that the influence of pituitary adrenocorticotropic hormone in rheumatic fever is indirect and depends on stimulation of the adrenal cortex and a consequent increased endogenous production of 11,17-oxysteroids, but the way in which the adrenocortical steroids in turn suppress the inflammatory rheumatic process is still not understood.

---

[10] The difficulty of obtaining an adequate group of untreated controls should be recognized.

[11] McEwen and his associates[5] also gained a similar impression from their studies.

Pituitary adrenocorticotropic hormone and cortisone have a number of interesting physiological effects.[6] These include: alterations in the metabolism of electrolytes, water, carbohydrates, fats and proteins; depression of the level of circulating eosinophils in the blood, and, at least in patients with active rheumatic fever, a decided reduction in the serum concentration of gamma globulin and in the titer of antistreptolysin O.[7a] In view of the presence of a high concentration of ascorbic acid in the adrenal cortex and the reduction of ascorbic acid content when the adrenal cortex is stimulated by pituitary adrenocorticotropic hormone,[12] a recent study [13] indicating that ascorbic acid possesses some antirheumatic activity when administered by mouth in large doses is also of interest. However, it is not known whether the observations on the physiological changes induced by hormones or the observations on ascorbic acid have any real significance in relation to the problem of the therapeutic mechanism of pituitary adrenocorticotropic hormone and cortisone in rheumatic fever.

SUMMARY AND CONCLUSIONS

The clinical effect of pituitary adrenocorticotropic hormone (ACTH) has been observed in 20 patients with active rheumatic fever. In many patients the rheumatic process was severe, and most of them had active carditis.

The initial response of fever and joint involvement was especially impressive, but pericarditis, subcutaneous nodules and other rheumatic manifestations also frequently disappeared during hormone therapy.

Withdrawal reactions with clinical manifestations of rheumatic fever or with only elevation of the sedimentation rate were sometimes observed when hormone therapy was completed. In most but not all such instances these signs of rheumatic activity again subsided spontaneously over varying periods of time without any further treatment.

Of two patients with chorea, one showed striking improvement in association with pituitary adrenocorticotropic hormone therapy; the other failed to respond to a 10 day period of treatment with the hormone in large doses.

Treatment has been completed in 17 of the 18 patients with rheumatic manifestations other than chorea. Three of these cases must be considered therapeutic failures. Although the total duration of active rheumatic fever varied greatly in the remaining 14 patients, it was our impression that, on the whole, recovery took place sooner than it would have without treatment.

The apparent response of pericarditis, congestive failure and subcutaneous nodules to pituitary adrenocorticotropic hormone in a number of patients and the complete disappearance in two patients of all significant murmurs strongly suggest that in some instances active carditis may be favorably influenced by hormone treatment. Also, there are hopeful indications that if therapy is begun early in an attack of rheumatic fever cardiac damage may be lessened or prevented

The only harmful reactions definitely attributable to pituitary adrenocorticotropic hormone in this series were retention of fluids with aggravation of congestive heart failure and, in one instance, serious mental depression. It is possible that in one patient with long-standing low grade rheumatic fever the degree of rheumatic activity was greater after discontinuation than prior to the administration of the hormone. One instance of fatal jugular thrombophlebitis was encountered, but as yet there is no definite reason to attribute this complication to pituitary adrenocorticotropic hormone therapy.

The mechanism of hormonal influences in rheumatic fever is not yet understood.

---

[12] Sayers, G, and Sayers, M. A · Pituitary Adrenal System, Ann. New York Acad Sc **50:** 522 539 (June 27) 1949

[13] Massell, B F.; Warren, J. E ; Patterson, P R, and Lehmus, H. J.· Antirheumatic Activity of Ascorbic Acid in Large Doses: Preliminary Observations on 7 Patients with Rheumatic Fever, New England J Med **242:** 614 615 (April 20) 1950

PHYSIOLOGICAL EFFECTS OF CORTISONE AND PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) IN MAN

RANDALL G SPRAGUE, M D.
MARSCHELLE H POWER, Ph.D.
and
HAROLD L MASON, Ph D.
Rochester, Minn

Clinical and metabolic studies by us and others before and particularly since the initial observations of Hench, Kendall, Slocumb and Polley [1] have provided evidence that cortisone and pituitary adrenocorticotropic hormone (ACTH) are powerful hormonal substances. It is probable that most, if not all, tissues of the body come within the scope of their activity. When administered to man they are capable of inducing a number of physiologic and pharmacologic alterations in addition to those involved in their favorable effects on a variety of disease states. In some circumstances there may be no distinct line of demarcation between favorable therapeutic effects and other physiological effects, some of them undesirable.

In most of the clinical conditions which have been favorably influenced by administration of these hormones there is no clear evidence of hormonal deficiency. (Exceptions are conditions of frank adrenal cortical insufficiency, such as occur primarily in Addison's disease and secondarily in panhypopituitarism.) Consequently, it appears that in many of these conditions a state of hormonal excess must be created in order to achieve therapeutic benefit If this state is of sufficient degree and duration a variety of physiological effects, desirable and undesirable, may become manifest.

For the foregoing reasons a thorough understanding of the physiological potentialities of cortisone and pituitary adrenocorticotropic hormone is essential for their safe and effective therapeutic use, particularly in conditions requiring large doses or prolonged administration. In this presentation we shall consider briefly the physiological activity of these agents, as observed in human subjects, under four headings: (1) effects on

---

From the Division of Medicine, Mayo Clinic (Dr Sprague) and the Division of Biochemistry, Mayo Foundation (Drs Power and Mason).

Read in a Symposium on ACTH and Cortisone before the Section on Experimental Medicine and Therapeutics at the Ninety Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950

We are indebted to Merck & Co, Inc, James M Carlisle, M D, Medical Director, for the supplies of cortisone, and to Armour and Company, John R Mote, M D, Director of Medical Research, for the supplies of ACTH used in these studies

[1] Hench, P S, Kendall, E C, Slocumb, C. H, and Polley, H. F.· The Effect of a Hormone of the Adrenal Cortex (17-Hydroxy 11-Dehydrocorticosterone. Compound E) and of Pituitary Adrenocorticotropic Hormone on Rheumatoid Arthritis. Preliminary Report, Proc Staff Meet, Mayo Clin **24:** 181 197 (April 13) 1949

metabolism of carbohydrate, protein and fat; (2) effects on metabolism of water and electrolytes; (3) effects on structure and function of the adrenal cortices, and (4) several miscellaneous hormonal effects.¹ It is recognized that not all of the known physiological activities of these hormones are included under these headings

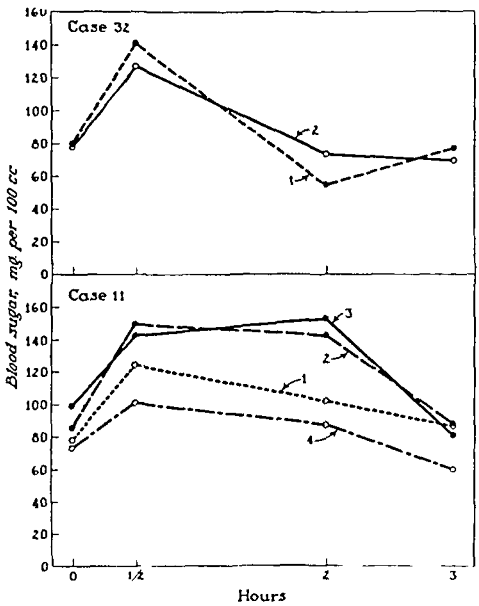


Fig. 1.—Upper (case 32). (1) Normal glucose tolerance in a woman aged 32, with disseminated lupus erythematosus, after administration of cortisone (average 112 mg. daily) for 96 days (2) Normal glucose tolerance after administration of cortisone (average 107 mg. daily) for 160 days Lower (case 11) (1) Normal glucose tolerance in a woman aged 40, with rheumatoid arthritis, before administration of cortisone (2) Impaired glucose tolerance after administration of cortisone for 7 days (average 129 mg. daily). (3) Impaired glucose tolerance after administration of cortisone, in another course, for 16 days (200 mg. daily) (4) Normal glucose tolerance 18 days after withdrawal of cortisone (reproduced from Sprague and others[4]).

EFFECTS ON METABOLISM OF CARBOHYDRATE, PROTEIN AND FAT

Carbohydrate.—That the administration of cortisone or pituitary adrenocorticotropic hormone to man might cause impairment of tolerance for carbohydrate is suggested by several earlier experimental and clinical observations: (*a*) these hormones are capable of inducing hyperglycemia and glycosuria in rats;[2] (*b*) cortisone corrects the abnormal sensitivity to insulin and the tendency to hypoglycemia exhibited by some patients with Addison's disease,[3] and (*c*) impairment of carbohydrate tolerance is a common feature of Cushing's syndrome and is apparently directly related to overproduction of cortisone-like adrenal steroids by hyperfunctioning adrenal cortices in this condition.[3b]

Inasmuch as the doses usually administered to patients are small, relative to body weight, compared to those necessary for the induction of diabetes in animals, it would be anticipated that impairment of carbohydrate tolerance in human subjects receiving these hormones would be slight or absent. In our experience this has generally proved to be the case Although slight increases in the level of the fasting blood sugar have been observed in some patients during administration of cortisone or pituitary adrenocorticotropic hormone, the values have not usually exceeded the normal range, and more than traces of sugar in the urine seldom have been observed. Among a group of patients receiving cortisone, there was no significant change in the mean value of the fasting blood sugar during or after administration of the hormone as compared to the mean value before its administration (table 1).[4]

Glucose tolerance tests have revealed a significant incidence of slight impairment of carbohydrate tolerance under the influence of cortisone. Among 12 patients, abnormal glucose tolerance curves, presumably due to cortisone, were observed in 4. It is of interest, and possibly of significance, that in 2 of these cases there was a family history of diabetes. In 2 of the 4 patients in whom impairment of glucose tolerance developed during administration of cortisone, tests which were performed after administration of the hormone had been stopped gave normal results.

In some instances no impairment of glucose tolerance was demonstrable after prolonged administration of cortisone. For example, in case 32 (fig. 1, upper) impairment could not be demonstrated after daily administration of the hormone for ninety-six days. after daily administration for 160 days, the glucose tolerance was still normal. In case 11 (fig. 1, lower) the glucose tolerance, which had been normal before administration of the hormone, was abnormal on one occasion after only seven days' administration at an average dose of 129 mg. daily and on another occasion after administration of 200 mg. daily for 16 days Eighteen days after withdrawal of cortisone the glucose tolerance was again normal.[4]

Table 1.—*Changes in Level of the Fasting Blood Sugar During and After Administration of Cortisone*

Mean Value Before Administration, Mg. per 100 Cc	During Administration		After Administration	
	Cases	Mean Difference, Mg per 100 Cc	Cases	Mean Difference Mg per 100 Cc
81.9	18	−1.5 ± 1.7*	16	−2.2 ± 2.0*

* A minus sign indicates a decrease as compared with the level before administration of cortisone The figure following the plus and minus sign is the standard error of the mean difference The mean difference is considered statistically significant if it is twice its standard error Therefore, neither of the changes tabulated above is considered statistically significant.

In contrast to this relatively benign experience with respect to impairment of carbohydrate tolerance, there have now been several cases observed elsewhere, and one at the Mayo Clinic, in which a temporary state of frank diabetes was induced by either cortisone or pituitary adrenocorticotropic hormone. In the clinic case a boy aged 4 years was found to have glycosuria and a fasting blood sugar level of 171 mg. per 100 cc after administration of 550 mg. of pituitary adrenocorticotropic hormone in six days for acute leukemia. Subsequently, glycosuria disappeared and the fasting blood sugar gradually returned to normal while the hormone was still being administered. Conn, Louis and Wheeler [5] observed impairment of glucose tolerance and fairly pronounced glycosuria in three normal adults who received 120 to 150 mg. of the agent daily for eight to 10 consecutive days. The glycosuria was apparently related in part to lowering of the renal threshold for glucose.

---

[2] Ingle, D. J. The Production of Glycosuria in the Normal Rat by Means of 17-Hydroxy 11 Dehydrocorticosterone, Endocrinology **29:** 649 652 (Oct) 1941. Ingle, D J, Li, C. H, and Evans, H M.. Effect of Adrenocorticotrophic Hormone on Urinary Excretion of Sodium, Chloride Potassium, Nitrogen and Glucose in Normal Rats, ibid **39:** 32 42 (July) 1946

[3] (*a*) Thorn, G W; Koepf, G F; Lewis, R. A, and Olsen, E F Carbohydrate Metabolism in Addison's Disease, J Clin Investigation **19:** 813 832 (Nov) 1940 Sprague, R G, Gastineau, C F, Mason, H L, and Power, M. H: Effects of Synthetic 11-Dehydrocorticosterone (Compound A) in a Subject with Addison's Disease, Am J Med **4:** 175 185 (Feb) 1948 (*b*) Sprague, R G; Mason, H L, and Power, M H Studies of the Effects of Adrenal Cortical Hormones on Carbohydrate Metabolism in Human Subjects, Proc Am Diabetes A (1949) **9:** 147 166, 1949 (*c*) Thorn, G. W, and Forsham, P. H: Metabolic Changes in Man Following Adrenal and Pituitary Hormone Administration, Recent Progr Hormone Research **4:** 229 288, 1949. Sprague, R. G; Power, M. H.; Mason, H. L, and Cluxton, H E: Metabolic Effects of Synthetic Compound E (*17-Hydroxy-11-Dehydrocorticosterone*) in 2 Patients with Addison's Disease and in 1 with Coexisting Addison's Disease and Diabetes Mellitus; abstracted, J Clin Investigation **28:** 812 (July) 1949

[4] Sprague, R G; Power, M H; Mason, H L; Albert, A; Mathieson, *D. R; Hench, P. S; Kendall, E. C; Slocumb, C H,* and Polley, H. F Observations on the Physiologic Effects of Cortisone and ACTH in Man Arch Int Med **85:** 199 258 (Feb) 1950

In a case recently studied by Pearson and Eliel,[6] in which the patient, a boy aged 17 years, received exceptionally large doses of cortisone and pituitary adrenocorticotropic hormone as treatment for acute granulocytic leukemia, pronounced glycosuria and ketonuria developed with a blood sugar determination of 505 mg. per 100 cc. and severe acidosis. The patient had not previously been known to have diabetes, nor was there a family history of diabetes. The two hormone agents were withdrawn and 400 units of insulin were employed for treatment of the condition. Death occurred from hemorrhage three days later. The blood sugar level on the day of death was 300 mg. per 100 cc., and the urine was free of sugar and ketone bodies. At necropsy no definite lesions were found in the pancreas; normal-appearing islet cells were present. In another case studied by McEwen,[7] a girl aged 10 years with acute Still's disease, who was not previously known to be diabetic, excreted up to 90 Gm. of glucose in the urine in 24 hours while receiving cortisone. There was evidence that the glycosuria was in part renal and in part diabetic in character.[8] The changes reverted to normal 22 days after administration of the hormone was stopped.

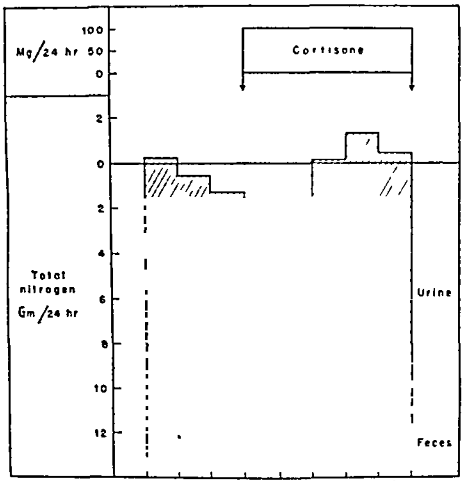


Fig 2—Slight effect of cortisone (100 mg daily) on nitrogen balance in a man aged 34, with rheumatoid arthritis and spondylitis In this figure, and in figure 3, the daily intake of nitrogen is charted from the 0 line downward and the average daily excretion (feces below, urine above) from the bottom line upward A negative balance is therefore indicated by extension of the column above the 0 line, and a positive balance by a clear area below the 0 line

Such exaggerated diabetogenic effects as those just described may indicate that the persons in question had latent diabetes prior to administration of the hormones. Indeed, temporary intensification of preexisting diabetes by cortisone has been observed by Boland and Headley [9] and by Perera and associates.[10] From a practical point of view, it is clearly wise to test the urine for sugar at intervals in both diabetic and nondiabetic persons receiving cortisone or pituitary adrenocorticotropic hormone.

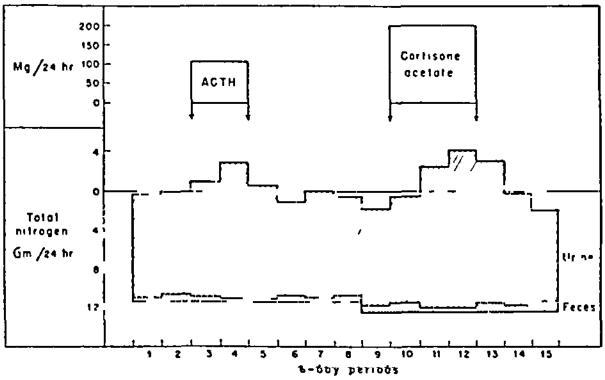


Fig 3—More pronounced effects of pituitary adrenocorticotropic hormone (ACTH) (105 mg daily) and cortisone (200 mg daily) on nitrogen balance in a woman aged 40, with rheumatoid arthritis

Protein.—Our investigations of the influence of the two agents on protein metabolism have consisted of studies of nitrogen balance and the urinary excretion of uric acid, creatine and creatinine.

Cortisone in doses of 100 mg. daily usually induced only slight increases in excretion of total nitrogen (fig. 2). With large doses of cortisone (200 mg. daily) and pituitary adrenocorticotropic hormone (105 mg daily), however, there was a rather decided loss of nitrogen from the body, indicative of an increase in the catabolism of protein under the influence of these hormones (fig. 3). Likewise, the retention of nitrogen which was observed when the effects of the administered hormones had waned is indicative of an antecedent loss of protein.

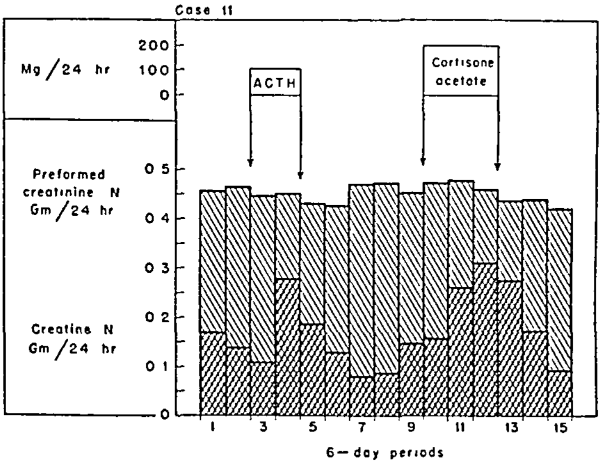


Fig 4—Effect of pituitary adrenocorticotropic hormone (ACTH) (105 mg daily) and cortisone (200 mg daily) on urinary creatine and creatinine, expressed as nitrogen, in a woman aged 40, with rheumatoid arthritis (reproduced from Sprague and others [4]).

---

[5] Conn, J W; Louis, L H, and Wheeler, C E Production of Temporary Diabetes Mellitus in Man with Pituitary Adrenocorticotropic Hormone Relation to Uric Acid Metabolism, J Lab & Clin Med **33**: 651 661 (June) 1948

[6] Pearson, O H, and Eliel, L P · Personal communication to the authors

[7] McEwen, C Discussion on the Effect of ACTH on Juvenile Rheumatoid Arthritis or Still's Disease, in Mote, J R Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp 393 404

[8] Kass, Ingbar and Finland (Proc Soc Exper Biol & Med **73**: 669 [April] 1950) also observed the development of renal glycosuria in a patient with pneumococcic pneumonia and bacteremia during administration of pituitary adrenocorticotropic hormone

[9] Boland, E W, and Headley, N. E · Effects of Cortisone Acetate on Rheumatoid Arthritis, J. A M A **141**: 301 308 (Oct 1) 1949

[10] Perera, G A, Pines, K L; Hamilton, H B, and Vislocky, K: Clinical and Metabolic Study of 11 Dehydro 17 Hydroxy Corticosterone Acetate (Kendall Compound E) in Hypertension, Addison's Disease and Diabetes Mellitus, Am J. Med **7**: 56 69 (July) 1949

Pronounced creatinuria was commonly observed when large doses of the hormones were administered (fig. 4). This observation may also indicate increased breakdown of body protein, for creatinuria commonly occurs in association with catabolism of muscular tissue. Likewise, an observed increase in the excretion of uric acid under the influence of the hormones, sometimes unassociated with significant change in the level of the serum uric acid, is probably consistent with the same general interpretation.

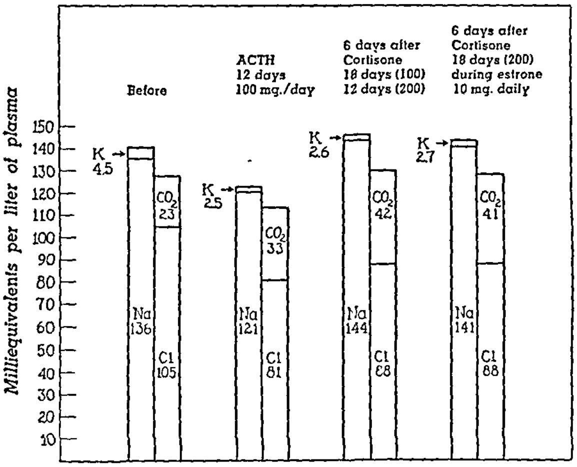


Fig. 5. — Changes in plasma sodium, potassium, chloride and carbon dioxide during and after administration of pituitary adrenocorticotropic hormone (ACTH) and cortisone to a woman aged 45, with rheumatoid arthritis.

The effects of the two agents on protein metabolism may be related to the inhibition of hair growth[11] and tumor growth[12] which has been observed in experimental animals, to the development of cutaneous striae in human subjects[4] and to the delayed healing of wounds[13] which has been observed in animal and human subjects during administration of these or related hormones.

Fat.—There is evidence that cortisone and pituitary adrenocorticotropic hormone exert an influence on metabolism of fat, but knowledge of these effects in human subjects is fragmentary. We have already referred to the occurrence of ketonuria in a subject in whom a temporary diabetic state was induced by the administration of cortisone.[6] Severe ketonuria was induced by cortisone in our subjects with coexisting Addison's disease and diabetes.[14] Transient ketonuria was observed by Perera and associates in some patients during administration of 80 mg. of cortisone daily. Thorn and his associates[15] have reported a transient increase in blood ketones during administration of cortisone in five of six patients who had Addison's disease.

Conn and others[16] have reported a decrease in the level of the serum cholesterol esters under the influence of pituitary adrenocorticotropic hormone and have suggested that esterified cholesterol is withdrawn from the blood for the synthesis of steroid hormones by the adrenal cortices when they are stimulated by this agent.

The occurrence of fatty livers in some patients with Cushing's syndrome[17] and in rats treated with the pituitary hormone[18] suggests the possibility that this phenomenon might occur in human subjects as a consequence of prolonged stimulation of the adrenal cortices with the agent. Apparently this has not yet been reported.

Abnormal distribution of fat, resembling that observed in Cushing's syndrome, may occur in patients in whom an excess of adrenal steroids is maintained for prolonged periods by administration of cortisone or pituitary adrenocorticotropic hormone. The trunk and neck appear obese, and the contour of the face becomes rounded. In most instances rounding of the facial contour has been associated with considerable gain in body weight. This has not always been the case, however, for significant rounding of the face was observed in two of our patients during administration of cortisone while the food intake was maintained at a constant level so that there was little or no change in body weight. The altered facial contour is apparently a consequence of deposition of fat in the cheeks. It has been the earliest and most obvious sign of abnormal distribution of fat which we have observed in patients receiving either of the hormones.

EFFECTS ON METABOLISM OF WATER AND ELECTROLYTES

Sodium Chloride and Water.—The characteristic effect of cortisone and allied hormones on electrolyte metabolism was formerly thought to be loss of sodium chloride and water from the body.[19] It now appears that its effects are variable. In some circumstances it may cause a retention of salt and water, sometimes of sufficient degree to produce edema. In other instances, in spite of continued administration of cortisone the retained salt and water may be excreted and edema dis-

Table 2.—*Changes in Eosinophil Count in Response to 25 Mg. of Pituitary Adrenocorticotropic Hormone Before, During and After Administration of Cortisone in a Case of Rheumatoid Arthritis and Spondylitis*

	Eosinophils per Cu. Mm.		
	8:00 A. M.	12:00 M.	% Change
Before cortisone	616	123	−80
During cortisone, 100 mg. daily for 20 days	229	257	+12
During cortisone, 100 mg. daily for 32 days	357	341	− 4
10 days after last dose of cortisone	151	73	−52
56 days after last dose of cortisone	473	163	−66

---

11. Whitaker, W. L., and Baker, B. L.: Inhibition of Hair Growth by the Percutaneous Application of Certain Adrenal Cortical Preparations, Science **108:** 207-209 (Aug. 27) 1948.

12. Diller, I. C.; Beck, L. V., and Blauch, B.: Effect of Adrenal Cortical Extract on the Growth of Certain Mouse Tumors, Cancer Research **8:** 581 (Nov.) 1948. Taylor, S. G., III, and Morris, R. S. Jr.: Effect of ACTH in Certain Types of Malignancy, in Mote, J. R.: Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 331-336.

13. Ragan, C.: Discussion on Metabolic Effects of Cortisone and ACTH in Cases of Rheumatoid Arthritis, in Mote, J. R.: Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 384-385.

14. Sprague, R. G.; Kepler, E. J.; Keating, F. R., Jr., and Power, M. H.: Coexisting Addison's Disease and Diabetes Mellitus: Comparative Effects of Compound E (17-Hydroxy-11-Dehydrocorticosterone) and Allied Substances in 3 Cases, abstracted J. Clin. Investigation **26:** 1198 (Nov.) 1947.

15. Thorn, G. W.; Forsham, P. H.; Bennett, L. L.; Roche, M.; Reiss, R. S.; Slessor, A.; Flink, E. B., and Somerville, W.: Clinical and Metabolic Changes in Addison's Disease Following the Administration of Compound E Acetate (11-Dehydro, 17-Hydroxycorticosterone Acetate), Tr. A. Am. Physicians **62:** 233-244, 1949.

16. Conn, J. W.; Vogel, W. C.; Louis, L. H., and Fajans, S. S.: Serum Cholesterol: A Probable Precursor of Adrenal Cortical Hormones, J. Lab. & Clin. Med. **35:** 504-517 (April) 1950.

17. Gorsuch, M. T.: Cushing's Syndrome: Clinical and Pathologic Investigation of 9 Verified Cases, and Review of the Literature on 91 Additional Cases, Thesis, University of Minnesota Graduate School, 1949.

18. Baker, B. L.; Ingle, D. J.; Li, C. H., and Evans, H. M.: The Effect on Liver Structure of Treatment with Adrenocorticotropin Under Varied Dietary Conditions, Am. J. Anat. **82:** 75-95 (Jan.) 1943.

19. Thorn, G. W.; Engel, L. L., and Lewis, R. A.: The Effect of 17-Hydroxycorticosterone and Related Adrenal Cortical Steroids on Sodium and Chloride Excretion, Science **94:** 348-349 (Oct. 10) 1941.

appear. The factors involved in the variable effects of the hormone on electrolyte metabolism are not well understood. One possible factor is depression of endogenous production of adrenal cortical hormones under the influence of the cortisone.

In our experience the administration of pituitary adrenocorticotropic hormone in doses of 100 mg. daily has almost uniformly caused an early retention of salt and water, followed by increased excretion while the hormone was still being administered or following its withdrawal.

In some clinical circumstances the initial retention of salt and water under the influence of one or the other agent may impose hazard on the patient. This is particularly true in the presence of heart disease or hypertension.

Cortisone in a dose of 200 mg. daily and pituitary adrenocorticotropic hormone in a dose of 100 mg. daily have been observed to cause the development of hypochloremic, hypopotassemic alkalosis, similar in all respects to that observed in some cases of Cushing's syndrome (fig. 5). Thus far all our patients in whom significant alkalosis has developed have been women. In most instances the alkalosis which has resulted from administration of pituitary adrenocorticotropic hormone has differed from that due to cortisone in that there has been some lowering of the level of plasma sodium with the former but not with the latter. After withdrawal of the hormones the concentrations of the plasma electrolytes have reverted to normal, rapidly in the case of pituitary adrenocorticotropic hormone and more slowly in the case of cortisone.

Potassium.—An increased excretion of potassium, with the development of negative potassium balance, has been a characteristic response to large doses of either hormonal agent in all our cases in which balance studies were conducted. The metabolic bookkeeping indicates that the potassium which is lost from the body is derived from the intracellular as well as from the extracellular fluid. The portion of the excreted potassium which originates within the cells is another manifestation of the catabolism of cellular protein which may take place under the influence of these hormones.

EFFECTS ON STRUCTURE AND FUNCTION OF THE ADRENAL CORTICES

Pituitary Adrenocorticotropic Hormone.—The physiological effects of this hormone are contingent on stimulation of the adrenal cortices to increase their output of steroid hormones. Evidence indicates that all known functions of the adrenal cortices are augmented by this agent. Morphologically this stimulation is expressed as hypertrophy and hyperplasia of the cortical tissue. All evidences of stimulation regress rapidly when administration of the hormone is stopped.

Cortisone.—In general, the effects of cortisone on adrenal cortical structure and function are the opposite of those of pituitary adrenocorticotropic hormone. When cortisone or other adrenal hormones which have similar physiological activity are administered to rats, atrophy of the adrenal cortices eventually ensues.[20] A clinical counterpart of this process is seen in patients who have a hyperfunctioning tumor of the cortex of one adrenal gland, particularly when the hormonal activity of the tumor is such as to induce Cushing's syndrome. In such patients the contralateral gland is likely to be atrophic and functionally deficient.[21]

The foregoing observations suggest that cortisone might cause atrophy of the adrenal cortices in the human being and that adrenal cortical function might be depressed during, and for an interval following, administration of the hormone, particularly if large doses had been employed for a prolonged period. We have, in fact, observed four types of evidence suggestive of adrenal depression by cortisone: (1) postcortisone asthenia; (2) depression of urinary 17-ketosteroids during and after administration of cortisone; (3) diminished response to pituitary adrenocorticotropic hormone (test of Thorn, Forsham, Prunty and Hills [22]), and (4) atrophy of adrenal cortices observed at necropsy.

Table 3.—*Weight of Adrenal Glands After Administration of Cortisone (Necropsy Cases)*

			Cortisone		Weights of Adrenal Glands, Gm.		
Sex	Age, Yr.	Diagnosis	Total Amount, Gm.	Days Since Last Dose	Right	Left	Total
F	65	Acute leukemia	3.9	8	4.7	3.9	8.6
F	5	Acute leukemia	4.4	9	1.4	1.3	2.7
F	8	Acute leukemia	3.8	1	1.4	1.5	2.9
F	2½	Acute leukemia	0.165	5	2.4	2.2	4.6
F	18	Acute leukemia	1.35	0	8.8	9.0	17.8
F	17	Lupus erythematosus	4.3	105	4.0	4.9	8.9
M	40	Periarteritis nodosa	2.8 0.825	12	...	...	12.5
M	48	Periarteritis nodosa	2.65 1.875 8.825	22	4.8	3.9	8.7
M	60	Rheumatoid arthritis, hepatitis	1.4 0.7	38	10.0	11.0	21.0

1. *Asthenia Following Withdrawal of Cortisone.*—Beginning a few days to a week after administration of cortisone is stopped, patients may complain of weakness and exhaustion. These symptoms may persist for a few days to several weeks but eventually abate. Although the asthenia cannot be attributed with certainty to adrenal cortical insufficiency, no other basis for it has been apparent in most of our cases. Furthermore, there have been other more tangible evidences of adrenal insufficiency, which are described later.

2. *Urinary Steroids During Administration and After Withdrawal of Cortisone.*—With the exception of cases in which the excretion of 17-ketosteroids was initially low, there was almost uniformly a prompt decrease in urinary 17-ketosteroids soon

---

[20] Ingle, D. J.; Higgins, G. M., and Kendall, E. C.: Atrophy of the Adrenal Cortex in the Rat Produced by Administration of Large Amounts of Cortin, Anat. Rec. **71:** 363 (July) 1938.

[21] Kepler, E. J.; Sprague, R. G.; Clagett, O. T.; Power, M. H.; Mason, H. L., and Rogers, H. M.: Adrenal Cortical Tumor Associated with Cushing's Syndrome: Report of a Case with Metabolic Studies and Remarks on the Pathogenesis of Cushing's Syndrome, J. Clin. Endocrinol. **8:** 499-531 (July) 1948.

[22] Thorn, G. W.; Forsham, P. H.; Prunty, F. T. G., and Hills, A. G.: A Test for Adrenal Cortical Insufficiency: The Response to Pituitary Adrenocorticotropic Hormone, J. A. M. A. **137:** 1005-1009 (July 17) 1948.

after administration of cortisone in a dose of 100 mg. daily was started.[4] In some cases the levels of 17-ketosteroids remained low for variable periods following prolonged administration of the hormone. These observations would seem to indicate depression by cortisone of at least some functions of the adrenal cortices.

3. *Response of the Adrenal Cortices to Pituitary Adrenocorticotropic Hormone.*—The third evidence of depression of adrenal cortical function by cortisone is a diminished response to a single 25 mg. dose of pituitary adrenocorticotropic hormone as measured by changes in the number of circulating eosinophils (test of Thorn, Forsham, Prunty and Hills[22]). Prior to administration of cortisone, the response to the other hormone was normal in all our patients. During administration of cortisone, the response was abnormal in six of eight tests. After administration of cortisone had been stopped for varying periods of time, the responses were variable, being normal in six tests and abnormal in seven tests.[4] The interval since the last administration of cortisone varied from 10 to 129 days in the six tests in which the response was normal, and from six to 33 days in the seven tests in which the response was abnormal. In all cases in which the test was performed at intervals after administration of cortisone had been stopped, the response eventually became normal. Data in one typical case are shown in table 2.

Thus, if it can be assumed that cortisone does not induce a change in the eosinophils themselves which makes them less responsive to adrenal cortical steroids, the results of these tests suggest that cortisone is capable of temporarily diminishing the responsiveness of the adrenal cortices to exogenous pituitary adrenocorticotropic hormone.

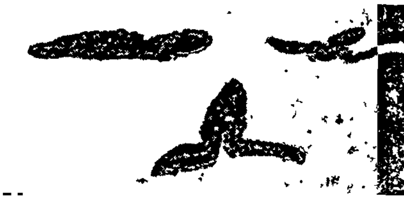


Fig. 6.—Upper: Cut surfaces of atrophic left and right adrenal glands of a girl, aged 5 years, with acute leukemia, nine days after completion of administration of 4.4 Gm. of cortisone. Lower: Cut surface of normal adrenal gland of child of same age, for comparison.

4. *Anatomic Atrophy of the Adrenal Cortices.*—Our associate, Dr. W. A. Bennett, has now had the opportunity to examine the adrenal glands at necropsy in nine cases of acute leukemia, periarteritis nodosa, disseminated lupus erythematosus and rheumatoid arthritis with hepatitis in which cortisone had been administered. The weights of the adrenal glands, together with figures for the total amount of cortisone administered and the number of days between the last dose of cortisone and death, are shown in table 3. Although there is a paucity of consistent data on normal adrenal weights in patients at various ages, and particularly in those dying of the diseases in question, the weights in some of these cases are significantly below recorded figures for supposedly normal adrenal glands.[23] For example, it appears that the atrophy was particularly pronounced in the cases of two children, ages 5 and 3 years, who died of acute leukemia nine days and one day, respectively, after receiving the last dose of cortisone. In these cases the combined adrenal weights were 2.7 and 2.9 Gm. The adrenals in the child aged 5, together with a normal adrenal from a child of the same age for comparison, are shown in figure 6. Histologically, the glands exhibited depletion of lipoid material, particularly in the zona fasciculata, which was significantly narrowed. The glomerulosa was well preserved. Dr. Bennett remarked that the glands had the gross and microscopic appearance of adrenal glands which had become atrophic as a consequence of anterior pituitary insufficiency. Indeed, suppression of the adrenocorticotropic function of the anterior pituitary is probably one of the mechanisms, if not the only one, by which cortisone may induce atrophy.

Is the apparent anatomic atrophy and depression of function of the adrenals induced by cortisone of any clinical importance? Experience to date is hardly adequate to provide an answer to this question. We know of no reason to suspect that the alterations of structure and function are not reversible after administration of cortisone is stopped. It is within the realm of possibility that adrenal cortical function in a person who had recently received cortisone might be inadequate under conditions of stress, such as trauma or fever; however, we have not yet encountered such a circumstance.

OTHER HORMONAL EFFECTS

Brief reference to some of the other hormonal effects of cortisone and pituitary adrenocorticotropic hormone will serve to illustrate further that these agents influence the metabolism and function of many, if not all, tissues of the body.

Androgenic Effects.—It came as somewhat of a surprise that cortisone should occasionally induce mild acne and hirsutism in women, effects commonly associated with steroid hormones which have androgenic activity. In our experience more pronounced androgenic effects, such as masculinization of the voice and habitus and enlargement of the clitoris, have not been observed. Those androgenic effects which have been observed have regressed when administration of the hormones has been stopped. Whether cortisone itself has weak androgenic properties or is metabolized in the body to yield androgenic compounds is not known. Pituitary adrenocorticotropic hormone has also been observed to produce androgenic effects, but there is a lack of precise knowledge of what steroid compounds produced by the adrenal cortices under the influence of this hormone are directly responsible for such effects.

Effects on Menstrual Function.—In our original group of patients who received cortisone or pituitary adrenocorticotropic hormones there were 10 women who had normal or almost normal menstrual function prior to the administration of the hormones.[4] Of the 10 women, three became amenorrheic during administration of cortisone. A fourth missed a period which was due a few days before administration of pituitary adrenocorticotropic hormone was started and did not menstruate either during administration of the agent or for a prolonged interval thereafter. Three of the four who became amenorrheic were young girls who had been menstruating three years or less, suggesting that menstrual function is more easily disturbed by these hormones in the young than in the mature woman. Details of the mechanism by which menstrual function may be affected have not been elucidated.

Psychic Effects.—A wide variety of psychic reactions, presumably hormonally induced, have now been observed by us and by others in occasional patients receiving cortisone or pituitary adrenocorticotropic hormone. These have included mild degrees of stimulation, euphoria, manic behavior, depression and frankly psychotic states. Although milder degrees of stimulation and euphoria are explainable as normal reactions to abrupt improvement in physical condition, the more severe reactions obviously cannot be so readily explained. Present evidence suggests that severe reactions are most likely to occur in persons with a background of nervous instability.

SUMMARY

Accumulated evidence indicates that cortisone and pituitary adrenocorticotropic hormone (ACTH) are powerful hormonal agents which are capable of influenc-

---

[23] Benner, M. C.: Studies on the Involution of the Fetal Cortex of the Adrenal Glands, Am. J. Path. 16:787-798 (Nov.) 1940.

ing the metabolism of many, if not all, tissues of the body. Some of these effects have favorable therapeutic implications, others are relatively unimportant, while still others may impose hazard on the patient. It is apparent that an awareness of the widespread physiological potentialities of these agents is a prerequisite for their safe and effective use in the treatment of disease.

EFFECTS OF PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) ON THE HYPERSENSITIVE STATE

JOHN EAGER HOWARD, M D.
A McGEHEE HARVEY, M D.
RICHARD A CAREY, M D.
and
WALTER L. WINKENWERDER, M D.
Baltimore

Rich and his co-workers noted that certain anatomic lesions in drug hypersensitivity and in periarteritis experimentally induced by horse serum bear a close resemblance to those of the rheumatic diseases.[1] This observation led to speculation as to the possible role of hypersensitivity in the causation of rheumatic fever, rheumatoid arthritis, lupus erythematosus and periarteritis nodosa. Therefore, when Hench and his group reported the dramatic effects of cortisone and pituitary adrenocorticotropic hormone (ACTH) in patients with these diseases it seemed possible that the clinical improvement might be due to some change in hypersensitivity induced by these agents. Accordingly, experiments were begun to test the effectiveness of pituitary adrenocorticotropic hormone in patients with diseases clearly due to hypersensitive reactions.[2] A brief review of our experience with 23 patients with asthma, 5 with serum disease type of reaction to penicillin, 2 with sympathetic ophthalmia and 2 with ophthalmic and skin sensitivity to atropine forms the basis of this report.[3] Most of the patients were given pituitary adrenocorticotropic hormone; to a few cortisone was given.

ASTHMATIC PATIENTS GIVEN PITUITARY ADRENOCORTICOTROPIC HORMONE

Nineteen patients with asthma have received courses of pituitary adrenocorticotropic hormone. Six of these were given two or more courses. Five patients have received cortisone, and four of these have later been given treatment with pituitary adrenocorticotropic hormone. The asthmatic patients all were suffering with the severe chronic form of disease, intractable to the usual therapeutic measures. All were considered to have asthma of the intrinsic type; in three it was thought to be due to both intrinsic and extrinsic factors.

Results of the first courses of pituitary adrenocorticotropic hormone may be summarized as follows: There was complete remission of all subjective and objective evidence of asthma in 15 of the 19 patients. They usually began to notice some improvement within a few hours of the first dose; complete remission, however, did not occur in one patient until the eleventh day of therapy. Symptomatic therapy was reduced to an absolute minimum after hormone therapy was begun, the patients being allowed but one type of agent such as isopropylarterenol (isuprel®) hydrochloride spray or aminophylline suppository except in exceedingly severe attacks. Reduction in requirement of such adjuvant therapy served as an excellent guide to the clinical course.

The dosage schedule in those patients who achieved a complete remission varied: usually 100 mg. of pituitary adrenocorticotropic hormone (Armour standard)[4] was given daily for the first two days, the amount being gradually reduced to 20 mg, the courses lasting from six to 21 days. The daily dose was always divided into four equal parts, given intramuscularly at six hour intervals. The total amount given to this group of patients ranged from 193 to 1,248 mg.

The duration of complete remission from asthmatic symptoms and signs has varied from three to more than 263 days. There is a rough correlation between the dosage and the duration of remission. The two patients who had the briefest periods of complete comfort received much the smallest and shortest courses of the hormone; however, the patient who received the largest dose manifested beginning asthmatic recurrence two weeks after completion of the course.

Four patients failed to achieve complete remission of their asthma. One was in the sixth and seventh months of pregnancy: although she experienced complete subjective relief on the fifth day of pituitary adrenocorticotropic hormone therapy, the auscultatory rhonchi never entirely disappeared. Two days after therapy was stopped, coincident with an upper respiratory infection, the asthma increased in severity and epinephrine was required. The second patient, who had had asthma more than 40 years, achieved approximately 60 per cent relief but still had to be given spray or injections on humid days. The other two patients who failed to have complete remission from asthma were later discovered to have received only half the scheduled dose of the hormone, owing to an error in assay. To this date none of the patients who have relapsed have had asthma of the same severity as before taking pituitary adrenocorticotropic hormone, as judged by either themselves or their physicians.

ASTHMATIC PATIENTS GIVEN MORE THAN ONE COURSE

Six patients in the first series have been given second or third courses of pituitary adrenocorticotropic hormone. All of these had responded to initial courses with complete remissions. Response to the drug was just as prompt in each instance as with its initial use.

ASTHMATIC PATIENTS TREATED WITH CORTISONE

Cortisone has been given to five patients with asthma. With a single exception, their asthma was similar in type and severity to that of the group who received pituitary adrenocorticotropic hormone. In the first four patients the dose of cortisone was 200 mg. on the

---

From the Department of Medicine of the Johns Hopkins University and Hospital.

This work was supported in part by a contract between the Johns Hopkins University and the Office of Naval Research and in part by a research grant from the United States Public Health Service

Read in a Symposium on ACTH and Cortisone before the Section on Experimental Medicine and Therapeutics at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950

[1] Rich, A R, and Gregory, J. E.: Experimental Evidence That Lesions with the Basic Characteristics of Rheumatic Carditis Can Result from Anaphylactic Hypersensitivity, Bull Johns Hopkins Hosp **73:** 239, 1943 Rich, A. R.: Hypersensitivity to Iodine as a Cause of Periarteritis Nodosa, ibid **77:** 43, 1945

[2] Bordley, J E, and others: Preliminary Observations on the Effect of Adrenocorticotropic Hormone (ACTH) in Allergic Diseases, Bull Johns Hopkins Hosp **85:** 396, 1949 Bordley, J. E, Harvey, A M, Howard, J E, and Newman, E V: Preliminary Report on the Use of ACTH in the Hypersensitive State, in Mote, J R Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, p 469

[3] Detailed reports of this material are in preparation for publication elsewhere

[4] Supplied as Actharmour by Armour & Company (Dr John R Mote).

first day and 100 mg. daily thereafter for seven days. The daily dose was divided into four equal parts and administered intramuscularly at intervals of six hours. A second course with double dosage was given to one patient 45 days after the first course, at a time when the asthma was approximately of equal severity. Only one patient in this group achieved complete subjective and objective remission; his asthma was mild as compared with that of other members of this series. The medicament was given to him primarily to note its effect on a large accumulation of nasal polyps. The other patients experienced only partial relief manifested by reduction in the requirement of antiasthmatic drugs, estimated variously as 25 to 50 per cent improvement. No better clinical improvement than after the initial course was noted during the second course with a double dose of cortisone by the one patient in whom this was tried.

A comparison of the results in this small group of patients with those in the group treated with pituitary adrenocorticotropic hormone would indicate that, at these dosage levels, cortisone compares unfavorably with the pituitary hormone in alleviating the symptoms and signs of chronic bronchial asthma. This conclusion is further substantiated by the results of retreating three of these patients with pituitary adrenocorticotropic hormone 50, 75 and 60 days after the unsuccessful courses of cortisone had been completed. In each of these three instances complete remissions of the asthma were induced. Furthermore, these same patients experienced partial symptomatic relief with this agent considerably earlier than they had with cortisone.

DRUG HYPERSENSITIVITY

Four patients with severe serum disease type of reaction to penicillin were given pituitary adrenocorticotropic hormone, initial doses being 100, 85 and 50 mg. Administration was continued four, five, six and nine days. Total dosage ranged from 145 to 635 mg. Beneficial response occurred in 6 to twelve hours; all subjective and objective signs, including fever, skin and joint manifestations, had disappeared within 72 hours.

A single patient with the same type of reaction to penicillin was given cortisone, 400 mg. the first day and 200 mg. for four succeeding days. No clinical benefit was noted until the third day, at which time urticaria improved slightly, joints were a little less swollen and painful, and fever fell. On the fourth day the temperature fell to normal; there was further minimal improvement in joints and skin. The patient insisted on leaving the hospital after the fifth day, and symptoms subsided gradually, not being entirely absent until five weeks after discharge.

Ophthalmic and skin sensitivity to atropine was reduced in two patients by pituitary adrenocorticotropic hormone. In one patient ocular sensitivity to atropine developed during treatment of sympathetic ophthalmia. During administration of ACTH instillation of atropine was reinstituted without reaction until the hormone dose was lowered to 20 mg. per day, at which time the typical lesions reappeared. At a later time atropine was readministered when the dose of the hormone was 40 mg. per day, and no reaction appeared.

The second patient had manifested dermatologic and ocular sensitivity to atropine and scopolamine during treatment for recurrent uveitis. For four months there had been violent dermatitis of the periorbital and facial skin together with conjunctival reaction. A patch test to atropine produced a severe response similar to the facial lesions. Within 48 hours after pituitary adrenocorticotropic hormone was given, the pericorneal congestion had faded, the erythema and edema of the skin subsided and the intraocular tension became stabilized. On the eighth day of hormone administration, while the patient was receiving 120 mg. per day, the atropine patch test was repeated and only a faint erythema resulted.

Two patients with sympathetic ophthalmia, a disease thought to result from hypersensitivity to uveal pigment,[5] responded with rapid improvement to pituitary adrenocorticotropic hormone. Evidence of inflammation and exudation began to recede within 48 hours, though edema and bogginess of the iris—the so-called organic features—did not seem to be affected.

COROLLARY STUDIES

Certain corollary studies on the patients with hypersensitive reactions while receiving pituitary adrenocorticotropic hormone gave the following results:

Eosinophils.—In the asthmatic patients who received pituitary adrenocorticotropic hormone, the maximum fall in blood eosinophils occurred from the second to the seventh day of drug administration. There was a reasonable correlation between the extent of eosinophil reduction and the degree of clinical improvement. However, toward the end of the course, usually when the dose became lower than 30 mg. per day, the eosinophil count rose although the asthma might still be improving or might remain completely alleviated.

All the patients with hypersensitivity to penicillin had eosinophil counts before medication which were too low for accurate evaluation of the effect of the hormone. Its effect on the circulating eosinophils of the patients with sympathetic ophthalmia and atropine sensitivity was similar to that in asthmatics.

Skin Reactions.—Six of the asthmatic patients were found, before receiving pituitary adrenocorticotropic hormone, to be skin sensitive to inhalants, and one patient to several foods. In five of these patients the immediate skin reactions were significantly reduced while they were receiving the hormone. Immediate skin reactions to bacterial antigens were significantly reduced in 10 of the 15 patients tested during administration of the drug. Delayed 24-hour bacterial reactions were reduced in 11 of the 15.

Of the six patients in whom immediate reactions to pollens and dust were obtained prior to hormone therapy, the serum reagin titer was measured in three instances by passive transfer, using the serum dilution method. The titer was not significantly altered during administration of the hormone, although the immediate skin reactions in two of these three patients were definitely reduced.

Nasopharyngoscopic Observations.—Striking changes were observed by Dr. J. E. Bordley in the nose and nasopharynx of the asthmatic patients during administration of pituitary adrenocorticotropic hormone. The edematous membranes shrank and became normal in color; discharge was reduced, and the lymphoid crypts became more prominent without visible change in the amount of lymphoid tissue present. Nasal polyps shrank, disappearing entirely in some instances. Antral clouding in roentgenograms was reduced and in some cases disappeared altogether.[2]

Antibody Formation.—Dr. George S. Mirick has made studies on the production of antibodies which may be summarized as follows: Antibodies to administered specific Pneumococcus polysaccharide were formed to approximately the same titer and at the same rate in two groups, 16 controls and 15 patients receiving pituitary adrenocorticotropic hormone or cortisone. This was true of both agglutinins and mouse-protective antibodies against Pneumococcus type 2. The latter observation seems of great practical importance and indicates that the two hormones in these doses do not lower the capacity to produce antibodies.

---

[5] Woods, A. C.: Allergy in Its Relation to Sympathetic Ophthalmia, New York State J. Med. 36:1, 1936. Friedenwald, J. S.: Notes on Allergy Theory of Sympathetic Ophthalmia, Am. J. Ophth. 17:1008, 1934.

Response to the Francis test,[6] manifested by local erythema and wheal formation from the polysaccharide injected intracutaneously at a time when circulating antibodies are elevated, was altered by administration of pituitary adrenocorticotropic hormone. In all controls at two to three weeks, and in six patients tested one to two months after the drug therapy was stopped, the test was positive. Between two or three weeks after vaccination with the polysaccharide, of six patients tested while being treated with the hormone three showed no response at all; the other three manifested only feeble reactions. At the same time all six had good titers of circulating antibodies.

Dr. Bacon F. Chow's studies showed that nonspecific complement rose significantly in all patients studied while being given pituitary adrenocorticotropic hormone. Precipitins to the agent have not developed in any patient.

Metabolic Effects.—In none of the group of patients here reported did there develop striae or glycosuria, and none of the women manifested amenorrhea or hirsutism. One third of the patients became edematous. Significant weight gain occurred in slightly more than one half, varying from 3 to 36 pounds (1.3 to 16.3 Kg.), maximum gain being reached anywhere from the fourth to the seventeenth day of drug administration. There appeared to be no difference between pituitary adrenocorticotropic hormone and cortisone in their propensity to cause sodium and water retention. Significant rises in blood pressure occurred in 10 per cent of the patients. Fasting blood sugar rose more than 20 mg. in one third of the group, maximum rise occurring from the second to the seventh day of pituitary adrenocorticotropic hormone therapy. Acne appeared in four of the group and was severe in one, but it regressed rapidly in all after withdrawal of the drug. Only one patient manifested a fall in serum potassium below 3 milliequivalents per liter; one half of the patients showed rises in serum carbon dioxide of more than 3 milliequivalents per liter, but in none was the rise more than 9 milliequivalents. The hematocrit fell in every instance, the average fall being 7 mm. (Wintrobe); the greatest fall was 10 mm. The degree of fall in hematocrit bore no apparent correlation with the amount of weight gained.

COMMENT

It seems clear that administration of cortisone and adrenal stimulation by pituitary adrenocorticotropic hormone exert beneficial action on the clinical manifestations of bronchial asthma and certain other types of cellular hypersensitivity which are thought to be due to antigen-antibody combination. The site of operation and mechanism of this beneficial action are as yet unknown. The property of "resistance" conferred by either of the hormones appears to be quantitative, lasting for variable periods of time and capable of being "broken through" if the challenge is sufficiently great.

From the evidence thus far obtained, pituitary adrenocorticotropic hormone and cortisone may be profitably used as adjuvants in the treatment of certain allergic conditions, provided neither is used in patients to whom the other physiologic effects of these agents might prove deleterious. Benefit has been obtained in patients with severe bronchial asthma, with serum disease type of reactions to penicillin, atropine sensitivity and sympathetic ophthalmia. A patient with bronchiectasis had severe asthma as a complication, and studies to localize the site and extent of the bronchiectasis could not be performed during treatment with the usual antiasthmatic drugs. After administration of pituitary adrenocorticotropic hormone had resulted in freedom from the asthma, bronchoscopy and pulmonary visualization by iodized oil (lipiodol®) were readily performed.

SUMMARY

Pituitary adrenocorticotropic hormone (ACTH) and cortisone have been demonstrated to provide clinical improvement in certain hypersensitive states due to antigen-antibody combination. The mechanism of this beneficial action is unknown. This report summarizes the clinical observations on 23 patients with chronic intractable asthma, five with serum disease type of reaction to penicillin, two with sympathetic ophthalmia and two with atropine sensitivity.

---

[6] Francis, T., Jr., and Tillett, W. S.: Cutaneous Reactions in Pneumonia: The Development of Antibodies Following the Intradermal Injection of Type-Specific Polysaccharide, J. Exper. Med. **52**: 573, 1930.

USE OF PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) AND CORTISONE IN LYMPHOMAS AND LEUKEMIAS

O. H. PEARSON, M.D.
and
L. P. ELIEL, M.D.
New York

The availability of a purified pituitary adrenocorticotropic hormone (ACTH)[1] and of the synthetically prepared adrenal cortical steroid, cortisone[2] (17-hydroxy-11-dehydrocorticosterone) provided means of inducing increased adrenal cortical function in man, in the first instance by stimulating the adrenal cortex to increased activity and in the second by administering a physiologically active, adrenal cortical steroid. Pituitary adrenocorticotropic hormone or cortisone acetate has been administered to 70 patients with various types of neoplastic disease during the past two years at Memorial Hospital. Among this group of patients all the clinical manifestations and metabolic alterations associated with Cushing's syndrome have been observed to develop, which is in agreement with the observations of Sprague and his colleagues.[3]

The clinical and metabolic manifestations of spontaneously occurring Cushing's syndrome have been reviewed by Albright[4] and Kepler and Locke.[5] The production of Cushing's syndrome in man by pituitary adrenocorticotropic hormone or cortisone acetate substantiates the concept of previous investigators that this syndrome is due to an overproduction of adrenal steroids with physiological properties similar to those of 17-hydroxy-11-dehydrocorticosterone. Albright has emphasized that one of the striking features of Cushing's syndrome is decided atrophy of tissues, namely, muscle, skin, bone, lymph nodes and thymus. Although the mechanisms by which the adrenal hormones exert their physiological effects are not known, Albright has

---

From the Sloan Kettering Institute and Memorial Hospital.

Read in a Symposium on ACTH and Cortisone before the Section on Experimental Medicine and Therapeutics at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

These studies were supported by grants from the United States Public Health Service, no. C-925(C2); jointly by the Office of Naval Research contract (no. N8-onr-66801) and the Atomic Energy Commission; the Damon Runyon Cancer Research Fund, and the American Cancer Society.

With the advice and assistance of Drs. C. P. Rhoads, Lloyd F. Craver, Rulon W. Rawson, Konrad Dobriner, T. R. Talbot Jr., Joseph H. Burchenal, Henry D. Diamond, George Escher, David Karnofsky, F. C. White, A. T. Petro and J. W. Poppell.

[1] Supplied by the Armour Laboratories.

[2] Supplied by Merck and Company, Inc.

[3] Sprague, R. G.; Power, M. H.; Mason, H. L.; Albert, A.; Mathieson, D. R.; Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Observations on the Physiologic Effects of Cortisone and ACTH in Man, Arch. Int. Med. **85**: 199 (Feb.) 1950.

[4] Albright, F.: C[illegible] Pathological Physiology, Its Relationship to the [illegible] and Its Connection with the Problem of the [illegible] Injurious Agents ("Alarm Reaction" of Selye), [illegible] 2-1943, Baltimore, Williams & Wilkins Company, 1943, p. 123.

[5] Kepler, E. J., and Locke, W.: Chronic Adrenal Hyperfunction, in Williams, R. H.: Textbook of Endocrinology, Philadelphia, W. B. Saunders Company, 1950, pt. 1, chap. 4, p. 180.

postulated that tissue atrophy results from inhibition of tissue synthesis rather than stimulation of tissue breakdown. Metabolic studies on patients receiving pituitary adrenocorticotropic hormone or cortisone acetate have demonstrated that body protoplasm is destroyed.

Animal studies have shown that either hormone inhibits growth in young animals [6] and produces atrophy of lymphoid tissues.[7] Heilman and Kendall [8] have observed that a transplantable lymphoid tumor in mice could be caused to regress by administration of cortisone. Murphy and Sturm [9] have demonstrated that decreased susceptibility to transplantable leukemia can be produced by administering pituitary adrenocorticotropic or adrenal cortical hormones. Law and Speirs [10] were able to produce remissions in spontaneous leukemia of mice with adrenal cortical extracts.

Experimental studies were therefore performed to determine whether increased adrenal cortical function would affect the rate of growth of tumors in man. Preliminary reports of these observations have been published.[11] In this paper, the clinical observations in 70 patients with various types of tumors will be presented.

CLINICAL OBSERVATIONS

Chronic Lymphatic Leukemia.—Eight patients with chronic lymphatic leukemia have received pituitary adrenocorticotropic hormone or cortisone acetate in a dosage of 100 to 200 mg. per day for periods of 18 days to three months. All these patients have shown appreciable shrinkage of enlarged lymph nodes, livers and spleens during hormone administration. In two patients regrowth of tumor masses occurred within two weeks after discontinuation of treatment. In three patients regrowth of lymphoid masses occurred slowly after six weeks to three months. Three patients died shortly after hormone administration was stopped, two with hemorrhagic manifestations and one with intercurrent infection. Four patients have shown responses to two courses of hormone administration. Two patients have had equally effective responses to three courses of treatment over a period of one year of observation. This indicates that refractoriness to administration of these hormones does not develop rapidly.

Some improvement in the hematological picture has been observed in this group of patients. In five patients a rise in reticulocyte count was followed by better maintenance of hemoglobin levels or a spontaneous rise in hemoglobin. In one patient the reticulocyte count rose to 9 per cent and the hemoglobin increased from 7 to 15 Gm. per 100 cc. Seven patients had slight, transient rises in platelet count. In all patients there was a rise in the peripheral white blood cell count during the first two weeks of treatment, in some instances to two or three times the initial level. Thereafter the leukocytes fell to below the pretreatment level in all patients. The differential white blood cell count, which was approximately 98 per cent mature lymphocytes in all patients, did not show improvement. Bone marrow aspirations, which also showed almost complete infiltration with mature lymphocytes, did not show improvement after treatment.

Subjective improvement was noted during the first two weeks of treatment in all patients. This was characterized by a sense of well-being, an improvement in appetite and an improved capacity for mental and physical work. In addition to the three deaths already described, a fourth patient died during a second course of hormone administration as a result of massive hemoptysis from a small pulmonary abscess. Of the four remaining patients, three have been able to resume their usual occupation (laborer, commercial artist and engineer). The fourth patient, although unable to work, is improved and ambulatory. All but one of these patients had previously received roentgen therapy or radioactive phosphorus. Two patients were considered to be refractory to radiation therapy. In several other patients radiation therapy did not seem to be indicated because of hemorrhagic manifestations and low platelet counts.

The therapeutic value of pituitary adrenocorticotropic hormone or cortisone acetate in this disease cannot be adequately evaluated at the present time. Complete remission of the disease does not appear to be obtainable with these hormones. The objective and subjective improvement obtained in this small group of patients suggest that these hormones are useful in the palliation of this disease. Long term observation will be required to determine whether these agents can prolong life in patients with chronic lymphatic leukemia.

Lymphosarcoma.—Six patients with lymphosarcoma have received pituitary adrenocorticotropic hormone or cortisone acetate for periods of nine to 52 days. All these patients showed definite shrinkage of lymphoid tumor masses. Four patients were in a terminal stage of their disease when treatment was started. These patients died during treatment despite transient improvement and objective shrinkage of tumor masses.

One previously untreated patient with disease apparently localized to one side of the neck showed almost complete regression of tumor masses during administration of 100 mg. of pituitary adrenocorticotropic hormone daily for 18 days. No perceptible regrowth of lymph nodes was detected during a three month period after therapy was stopped. Biopsy of two small lymph nodes which remained during this period revealed no significant pathological alteration. During the fourth month after hormone administration, gradual enlargement of lymph nodes was noted and biopsy again revealed changes consistent with lymphosarcoma. Roentgen therapy was given with complete disappearance of the adenopatny.

One patient with severe, generalized adenopathy and splenomegaly showed rapid shrinkage of lymph nodes and spleen during administration of 100 mg. of pituitary adrenocorticotropic hormone daily for 18 days. Regression of lymph nodes and spleen persisted for three months after therapy was stopped. During the fourth month slow regrowth of lymph nodes occurred, and a second course of the hormone was equally effective in reducing the size of tumor masses. After a four month interval, during which regression persisted, regrowth of lymph nodes and spleen occurred. In addition, massive right hydrothorax developed, presumably due to enlarged mediastinal lymph nodes. The fluid was aspirated from the chest, and a third course of pituitary adrenocorticotropic hormone was again as effective in shrinking the enlarged lymph nodes and spleen. Regression has persisted during a two month interval since the last course of the hormone, and there has been no reaccumulation of pleural fluid. Evidence of refractoriness to hormone administration has not been manifested in this patient during three courses of treatment over a period of one year. The patient has remained in good health throughout this period.

---

[6] Wells, B. B., and Kendall, E. C.: The Influence of Corticosterone and Compound E on Somatic Growth, Proc. Staff Meet., Mayo Clin. **15:** 324, 1940. Baker, B. L., and Ingle, D. J.: Growth Inhibition in Bone and Bone Marrow Following Treatment with ACTH, Endocrinology **43:** 422, 1948.

[7] Dougherty, T. F., and White, A.: Effect of Pituitary Adrenotropic Hormone on Lymphoid Tissue, Proc. Soc. Exper. Biol. & Med. **53:** 132, 1943.

[8] Heilman, F. R., and Kendall, E. C.: The Influence of 11-Dehydro-17-Hydroxycorticosterone (Compound E) on the Growth of a Malignant Tumor in the Mouse, Endocrinology **34:** 416, 1944.

[9] Murphy, J. B., and Sturm, E.: The Effect of Adrenal Cortical and Pituitary Adrenotropic Hormones on Transplanted Leukemia in Rats, Science **99:** 303, 1944.

[10] Law, L. W., and Speirs, R.: Response of Spontaneous Lymphoid Leukemias in Mice to Injection of Adrenal Cortical Extracts, Proc. Soc. Exper. Biol. & Med. **66:** 226, 1947.

[11] (*a*) Pearson, O. H.; Eliel, L. P.; Rawson, R. W.; Dobriner, K., and Rhoads, C. P.: ACTH- and Cortisone-Induced Regression of Lymphoid Tumors in Man: A Preliminary Report, Cancer **2:** 943, 1949. (*b*) Pearson, O. H.; Eliel, L. P., and Talbot, T. R., Jr.: The Use of ACTH and Cortisone in Neoplastic Disease, Bull. New York Acad. Med. **26:** 235, 1950. (*c*) Pearson, O. H.; Eliel, L. P., and Rawson, R. W.: Regression of Lymphoid Tumors in Man Induced by ACTH and Cortisone, in Mote, J. R.: Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950. Pearson, O. H.; Eliel, L. P., and White, F. C.: The Response of Neoplastic Lymphoid Tissue to Increased Adrenal Cortical Function, in Symposium on the Adrenal Cortex, Proc. Am. A. Adv. Sc., to be published. Pearson, O. H.; Eliel, L. P., and Talbot, T. R., Jr.: Remission in Acute Leukemia Induced by ACTH, Cancer Research **10:** 235, 1950. Pearson, O. H., and Eliel, L. P.: Metabolic Effects of ACTH in Acute Leukemia, abstracted, J. Clinical Investigation **29:** 838, 1950. Pearson, O. H.; Eliel, L. P.; Talbot, T. R., Jr.; Burchenal, J. H.; Petro, A. T.; Poppell, J. W., and Craver, L. F.: The Use of ACTH and Cortisone in Acute Leukemia, Blood **5:** 786, 1950.

Evaluation of the therapeutic usefulness of pituitary adrenocorticotropic hormone and cortisone acetate in patients with lymphosarcoma will require further observations.

Acute Leukemia.—The striking shrinkage of lymphoid masses in patients with chronic lymphatic leukemia and lymphosarcoma induced by pituitary adrenocorticotropic hormone or cortisone acetate suggested the trial of these hormones in patients with acute leukemia. It has been found that temporary remissions can be induced with considerable regularity in both children and adults with acute granulocytic or acute lymphocytic leukemia. Monocytic leukemia appears to be unaffected by these hormones. Thirty patients (10 adults and 20 children) with acute leukemia have received one of these agents. Of this group, 13 (nine children and four adults) have shown a good clinical and hematological remission, nine have shown objective clinical or hematological improvement, or both, and eight have shown no response.

Symptomatic improvement usually occurred within the first few days of treatment as evidenced by development of a sense of well-being, improvement in appetite, cessation of bleeding manifestations and a subsidence of fever. Shrinkage in the size of enlarged lymph nodes, spleens and livers occurred within a few days after the start of treatment. Hematological improvement was first manifested by a rapid fall in the number of circulating white blood cells (when initially elevated), an increase in the percentage of mature, circulating leukocytes, a rise in reticulocytes and an increase in platelet count. After two to four weeks of treatment the peripheral blood was frequently normal. Bone marrow improvement was first manifested by the appearance of erythropoietic activity. Within two to three weeks of treatment mature myeloid cells increased in number. In some cases the bone marrow appeared normal during remission, but careful study usually revealed the presence of a few abnormal cells.

Remissions induced by pituitary adrenocorticotropic hormone or cortisone acetate are of short duration, varying from three weeks to two months. Refractoriness to hormone therapy develops rapidly. Although five children have responded to second courses of treatment, in all but one the hormones had to be given for longer periods and in larger dosage before a remission was obtained. Several patients who obtained remissions with a first course of treatment failed to show any response to a second period of hormone administration. Several patients who showed an initial response to treatment, but who failed to obtain a satisfactory hematological remission, relapsed and died while hormone therapy was continued.

Nine patients with acute leukemia, who had become resistant to therapy with folic acid antagonists,[12] have responded to pituitary adrenocorticotropic hormone or cortisone acetate. Similarly, three patients who had become refractory to administration of one of these agents have responded to folic acid antagonists.[12] These observations suggest that the hormones exert their beneficial effects in patients with acute leukemia by a different mechanism than that involved with folic acid antagonists.

Twenty-one patients received pituitary adrenocorticotropic hormone initially and nine were given cortisone acetate. Responses appeared to be equally good with either agent, although usually the response occurred sooner with the former than with the latter. Pituitary adrenocorticotropic hormone was administered in a daily dosage of 50 to 100 mg. to children and 100 to 200 mg. to adults in four divided doses at six hour intervals. Cortisone acetate was given in 100 to 200 mg. amounts daily to children and in 200 to 400 mg. amounts daily to adults, usually in four divided doses. Both hormones were given intramuscularly. It may be concluded from these observations that pituitary adrenocorticotropic hormone and cortisone acetate are useful in the temporary palliation of patients with acute granulocytic or lymphocytic leukemia.

Hodgkin's Disease.—Six patients with Hodgkin's disease have received pituitary adrenocorticotropic hormone or cortisone acetate. During hormone administration four of the six patients showed slight shrinkage of enlarged lymph nodes and spleens. In two patients subsidence of fever and decreased itching of the skin were also noted. One patient obtained temporary relief of mechanical obstruction to respiration. Three patients with far advanced disease died during hormone administration. In two patients with moderately advanced disease prompt recurrence of symptoms and tumor masses followed cessation of hormone administration. One previously untreated patient manifested depression and delusions after six weeks of pituitary adrenocorticotropic administration and committed suicide shortly after the hormone was stopped. These limited observations indicate that either of the two agents may produce slight, temporary improvement in patients with Hodgkin's disease, but lasting beneficial effects have not been obtained.

Plasma Cell Myeloma.—We previously reported [11b] that pituitary adrenocorticotropic hormone failed to produce any significant improvement in one patient with plasma cell myeloma. Postmortem examination subsequent to our report failed to confirm the diagnosis of plasma cell myeloma in this patient: instead, a diagnosis of anaplastic carcinoma was made. Another patient in whom the diagnosis of plasma cell myeloma appeared more nearly certain has shown symptomatic and objective improvement during pituitary adrenocorticotropic hormone and cortisone acetate administration. In this patient administration of the former agent resulted in rapid disappearance of severe pain in the extremities and back, a decided reduction of serum myeloma protein, a rise in reticulocyte count and hemoglobin level and improvement in renal function. The bone marrow, however, has remained infiltrated with plasma cells. When treatment was stopped, there was a recurrence of symptoms within 24 hours. Readministration of the hormone again resulted in striking clinical improvement. Exacerbation occurred a second time on stopping the drug. Improvement was obtained a third time with administration of cortisone acetate, and at the present time the patient feels fairly well on a maintenance dose of 50 mg. cortisone acetate daily.

---

[12] Studies in these patients were done in collaboration w Joseph H. Burchenal and will be reported in detail elsewhere.

Neoplastic Diseases in Which the Hormones Have Not Had Demonstrable Beneficial Effects.—Four patients with chronic myelogenous leukemia have received pituitary adrenocorticotropic hormone. Some shrinkage in the size of enlarged lymph nodes and spleens was noted in all four patients. No evidence of improvement in the hematological picture, however, was observed in any of these patients.

Four patients with acute monocytic or acute myelomonocytic leukemia have shown no beneficial effects from receiving either hormone. Seven patients with carcinoma, two of the breast, two of the lung and one each of the prostate, pancreas and adrenal, have not shown demonstrable shrinkage of tumors during hormone administration. Two patients with Ewing's tumor and one each with osteogenic sarcoma, rhabdomyosarcoma, synovial sarcoma, neuroblastoma and malignant melanoma have failed to show any significant change during administration of pituitary adenocorticotropic hormone or cortisone acetate.

COMMENT

Spontaneously occurring Cushing's syndrome has a fatal outcome if untreated. Within our group of 70 patients all the clinical and metabolic manifestations of Cushing's syndrome have been observed to develop as a result of administration of pituitary adrenocorticotropic hormone or cortisone acetate. The use of these hormones is therefore limited by the physiological effects produced, which may in themselves prove fatal. All, or nearly all, of the physiological effects of the agents are reversible when hormone administration is stopped. Certain physiological effects require that administration of the hormone be discontinued; other effects can be controlled without stopping hormone therapy.

Physiological Effects Which Can Be Controlled Without Stopping Hormone Administration.—1. Edema: In patients on an unrestricted diet pituitary adrenocorticotropic hormone and cortisone acetate usually produce decided retention of fluids with edema formation. Occasionally spontaneous diuresis occurs while hormone administration continues. Usually fluid retention continues until the hormone therapy is stopped, when diuresis occurs promptly. Fluid retention is probably caused by a physiological effect on the kidney producing sodium and chloride retention. Pronounced fluid retention can be prevented by restriction of sodium chloride intake (low salt diet).

2. Alkalosis, Hypochloremia and Hypopotassemia: These electrolyte changes occur frequently during administration of pituitary adrenocorticotropic hormone or cortisone acetate apparently as the result of an intracellular potassium deficit. Symptoms and signs of potassium deficit may occur: i. e., apathy, lethargy, muscular weakness or paralysis, abdominal distention and cardiac irregularities. The signs and symptoms of potassium deficit can be alleviated and the serum electrolyte changes corrected by administration of potassium chloride without stopping the hormone.

3. Glycosuria and Hyperglycemia: Diabetes occurs in a small percentage of patients receiving either of the agents. Glycosuria and hyperglycemia are usually moderate in degree and do not require treatment with insulin. The diabetes disappears when the hormone is stopped. In one patient severe diabetic acidosis developed during administration of pituitary adrenocorticotropic hormone. Treatment was stopped, and only moderate amounts of insulin were required to control the diabetic crisis.

4. Atrophy of Tissues: Metabolic balance studies of the effects of pituitary adrenocorticotropic hormone or cortisone acetate in patients with lymphoid tumors have shown that not only lymphoid tumor tissue is destroyed but normal tissues as well. Prolonged administration of either hormone in sufficient quantity may produce severe wasting of muscle and presumably of other normal tissues. Weakness and debility may be associated with this loss of muscle mass aside from the electrolyte changes described above.

A metabolic balance study in one patient with chronic lymphatic leukemia during administration of both cortisone acetate and testosterone has demonstrated that decided shrinkage of lymphoid tumor masses occurred while the patient remained in nitrogen balance. This observation indicates that involution of lymphoid tumor tissue occurred while normal tissue was being built up. Albright[4] has demonstrated beneficial effects of testosterone therapy in patients with Cushing's syndrome. It would thus appear that atrophy of certain normal tissues induced by cortisone acetate administration may be prevented by simultaneous administration of testosterone.

Physiological Effects Requiring Cessation of Hormone Administration.—1. Hypertension: Significant increases in blood pressure during administration of pituitary adrenocorticotropic hormone and cortisone acetate have been observed only in children. Severe hypertension may develop rapidly in children without obvious relationship to duration of therapy, electrolyte changes or the clinical manifestations of Cushing's syndrome. Two children suddenly manifested hypertensive encephalopathy, one during treatment with the former agent and the other during treatment with the latter. There was rapid onset of coma, convulsions, transient hemiparesis, blurring of the optic disks and elevation of blood pressure to levels of 200/140 mm. of mercury. Both patients recovered without residual signs within a few days of stopping the hormones. Significant elevation of blood pressure during hormone administration requires careful observation or immediate cessation of therapy.

2. Mental Disturbances: A sense of well-being even in the presence of debilitating disease is a frequent early effect of treatment with pituitary adrenocorticotropic hormone or cortisone acetate. Sleeplessness is frequently noted during administration of these hormones. After several weeks of hormone administration a state of depression sometimes develops. Two of our patients have committed suicide during such a state of

depression. Delusions have occurred in a few patients after several weeks of hormone administration, e. g., a sense of a peculiar body odor, a sense of shrinking of the extremities to "matchstick" size, a sense of rising into space. Depression, delusions or psychotic manifestations probably demand immediate cessation of therapy.

3. Pyogenic Infections: Lowered resistance to skin infections has been previously noted in patients with Cushing's syndrome. Prolonged administration of pituitary adrenocorticotropic hormone or cortisone acetate may impair the localization and resolution of pyogenic infections. Administration of either of the hormones should not be continued in the presence of infections which fail to respond rapidly to specific therapy.

SUMMARY

Experimental studies of the effects of pituitary adrenocorticotropic hormone (ACTH) and cortisone acetate in 70 patients with various types of neoplastic disease are reported. Administration of these hormones has produced all the clinical and metabolic manifestations of Cushing's syndrome among various members of this group of patients.

Striking temporary shrinkage of enlarged lymph nodes, spleens and livers has been produced as a result of treatment with either agent in patients with chronic lymphatic leukemia, lymphosarcoma, acute lymphatic leukemia and acute granulocytic leukemia. Slight shrinkage of enlarged lymph nodes and spleens in patients with Hodgkin's disease has been observed during hormone administration.

Temporary remissions in patients with acute lymphocytic leukemia and acute granulocytic leukemia have been induced by pituitary adrenocorticotropic hormone and cortisone acetate. Temporary clinical improvement in one patient with plasma cell myeloma has been observed with the use of the two agents.

No significant improvement from hormone administration was seen in patients with acute monocytic or myelomonocytic leukemia, chronic myelogenous leukemia, malignant melanoma, neuroblastoma and several types of carcinoma and sarcoma. These agents are useful in the temporary palliation of patients with acute lymphocytic and acute granulocytic leukemia. Their possible therapeutic usefulness in chronic lymphatic leukemia, lymphosarcoma and multiple myeloma require further evaluation.

The control of the physiologic effects of pituitary adrenocorticotropic hormone and cortisone acetate in man are discussed.

Infinity.—As new stars and galaxies, untold billions of light years distant, are discovered and as still larger and more powerful telescopes are built, there is one mystery that may never be solved by man—the mystery of infinity. . . . It was not so long ago that science taught the indivisibility of the atom. Then we learned that the atom was only Nature's building brick that could be further divided into its components. And then we were told that there are protons and positrons, electrons and neutrons—and no serious-minded scientist would wager that we have reached the end of physical or even theoretical divisibility. For that matter, many begin to doubt that there is such an end. Thus, infinity may work both ways, and no matter how powerful our artificial eyes—the telescope and the microscope—might become, they may never cover more than a limited portion of a band that has no limits and infinity on either side.—*Technical Data Digest,* November 1950, page 4.

EFFECTS OF CORTISONE IN CERTAIN NEUROMUSCULAR DISORDERS

G. M. SHY, M.D.
S. BRENDLER, M.D.
R. RABINOVITCH, M.D.
and
D. McEACHERN, M.D.
Montreal

The effects of cortisone have been studied in 12 patients with muscular or neuromuscular disorders. The therapeutic results in some instances were dramatic, while in others they may throw some light on the mechanism of the conditions involved.

The studies were based on four patients with proximal girdle myopathy which appeared after the menopausal or climacteric period: two with dystrophia myotonica; one with myasthenia gravis; two with disseminated lupus erythematosus with severe muscular involvement; one with juvenile muscular dystrophy with severe contractures, and, finally, two with motor neuron disease manifested by bulbar palsy and amyotrophic lateral sclerosis.

INVESTIGATION

Muscle biopsy was carried out on all patients in order to confirm the clinical diagnosis as closely as possible. Eosinophil counts, basal metabolic rates, glucose tolerance curves and serum sodium, potassium, creatinine and uric acid levels were determined at three to five day intervals. Electromyograms on each patient were obtained before and during administration of the drug and more frequently on the two patients with dystrophia myotonica. All patients were kept on a meat-free diet, and daily 24-hour urine creatine and creatinine determinations were made.[1] Intake and output of fluids were recorded daily. Blood pressures were recorded twice daily. For each patient, an initial electroencephalogram was obtained and one also at the height of medication. Weights were plotted daily. Tests of muscle power were carried out, according to the individual patient's specific weakness, at almost daily intervals. For each patient a cholesterol control period was instituted after cessation of hormone therapy.

GENERAL RESULTS

In all but one case there was a prompt fall in the circulating eosinophils within four to six days after commencement of therapy. The one exception was a case of progressive muscular atrophy in a patient who maintained a persistent unexplained eosinophilia. Glucose curves rose to near diabetic levels in all cases. Our findings, unlike those of Milhorat[2] with pituitary adrenocorticotropic hormone (ACTH), indicated that the creatine: creatinine ratio remained almost constant, a source of disappointment to us. This may have been because levels of cortisone compatible with 150 mg. of pituitary adrenocorticotropic hormone were not used.

In no cases were electroencephalographic abnormalities detected during or after cessation of administration. This is of interest in view of the high percentage of electroencephalographic changes observed by Hoefer and Glaser[3] in their studies with pituitary adreno-

---

Project no. C-9 of the National Research Council of Canada.

Fellow of the National Research Council of Canada (Dr. Shy).

From the Department of Neurology and Neurosurgery, McGill University, and the Montreal Neurological Institute.

[1] Miss Mona Landy and Miss Doris Brophy gave technical assistance.

[2] Milhorat, A. T.: The Effect of ACTH in Myotonia Atrophica and in Progressive Muscular Dystrophy, in Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 588-595.

[3] Hoefer, P. F. A., and Glaser, G. H.: Effects of Pituitary Adrenocorticotropic Hormone (ACTH) Therapy, J. A. M. A. **143:** 620-624 (June 17) 1950.

agent resulted in rapid disappearance of severe pain in the extremities and back, a decided reduction of serum myeloma protein, a rise in reticulocyte count and hemoglobin level and improvement in renal function. The bone marrow, however, has remained infiltrated with plasma cells. When treatment was stopped, there was a recurrence of symptoms within 24 hours. Readministration of the hormone again resulted in striking clinical improvement. Exacerbation occurred a second time on stopping the drug. Improvement was obtained a third time with administration of cortisone acetate, and at the present time the patient feels fairly well on a maintenance dose of 50 mg. cortisone acetate daily.

Neoplastic Diseases in Which the Hormones Have Not Had Demonstrable Beneficial Effects.—Four patients with chronic myelogenous leukemia have received pituitary adrenocorticotropic hormone. Some shrinkage in the size of enlarged lymph nodes and spleens was noted in all four patients. No evidence of improvement in the hematological picture, however, was observed in any of these patients.

Four patients with acute monocytic or acute myelomonocytic leukemia have shown no beneficial effects from receiving either hormone. Seven patients with carcinoma, two of the breast, two of the lung and one each of the prostate, pancreas and adrenal, have not shown demonstrable shrinkage of tumors during hormone administration. Two patients with Ewing's tumor and one each with osteogenic sarcoma, rhabdomyosarcoma, synovial sarcoma, neuroblastoma and malignant melanoma have failed to show any significant change during administration of pituitary adenocorticotropic hormone or cortisone acetate.

COMMENT

Spontaneously occurring Cushing's syndrome has a fatal outcome if untreated. Within our group of 70 patients all the clinical and metabolic manifestations of Cushing's syndrome have been observed to develop as a result of administration of pituitary adrenocorticotropic hormone or cortisone acetate. The use of these hormones is therefore limited by the physiological effects produced, which may in themselves prove fatal. All, or nearly all, of the physiological effects of the agents are reversible when hormone administration is stopped. Certain physiological effects require that administration of the hormone be discontinued; other effects can be controlled without stopping hormone therapy.

Physiological Effects Which Can Be Controlled Without Stopping Hormone Administration.—1. Edema: In patients on an unrestricted diet pituitary adrenocorticotropic hormone and cortisone acetate usually produce decided retention of fluids with edema formation. Occasionally spontaneous diuresis occurs while hormone administration continues. Usually fluid retention continues until the hormone therapy is stopped, when diuresis occurs promptly. Fluid retention is probably caused by a physiological effect on the kidney producing sodium and chloride retention. Pronounced fluid retention can be prevented by restriction of sodium chloride intake (low salt diet).

2. Alkalosis, Hypochloremia and Hypopotassemia: These electrolyte changes occur frequently during administration of pituitary adrenocorticotropic hormone or cortisone acetate apparently as the result of an intracellular potassium deficit. Symptoms and signs of potassium deficit may occur: i. e., apathy, lethargy, muscular weakness or paralysis, abdominal distention and cardiac irregularities. The signs and symptoms of potassium deficit can be alleviated and the serum electrolyte changes corrected by administration of potassium chloride without stopping the hormone.

3. Glycosuria and Hyperglycemia: Diabetes occurs in a small percentage of patients receiving either of the agents. Glycosuria and hyperglycemia are usually moderate in degree and do not require treatment with insulin. The diabetes disappears when the hormone is stopped. In one patient severe diabetic acidosis developed during administration of pituitary adrenocorticotropic hormone. Treatment was stopped, and only moderate amounts of insulin were required to control the diabetic crisis.

4. Atrophy of Tissues: Metabolic balance studies of the effects of pituitary adrenocorticotropic hormone or cortisone acetate in patients with lymphoid tumors have shown that not only lymphoid tumor tissue is destroyed but normal tissues as well. Prolonged administration of either hormone in sufficient quantity may produce severe wasting of muscle and presumably of other normal tissues. Weakness and debility may be associated with this loss of muscle mass aside from the electrolyte changes described above.

A metabolic balance study in one patient with chronic lymphatic leukemia during administration of both cortisone acetate and testosterone has demonstrated that decided shrinkage of lymphoid tumor masses occurred while the patient remained in nitrogen balance. This observation indicates that involution of lymphoid tumor tissue occurred while normal tissue was being built up. Albright[4] has demonstrated beneficial effects of testosterone therapy in patients with Cushing's syndrome. It would thus appear that atrophy of certain normal tissues induced by cortisone acetate administration may be prevented by simultaneous administration of testosterone.

Physiological Effects Requiring Cessation of Hormone Administration.—1. Hypertension: Significant increases in blood pressure during administration of pituitary adrenocorticotropic hormone and cortisone acetate have been observed only in children. Severe hypertension may develop rapidly in children without obvious relationship to duration of therapy, electrolyte changes or the clinical manifestations of Cushing's syndrome. Two children suddenly manifested hypertensive encephalopathy, one during treatment with the former agent and the other during treatment with the latter. There was rapid onset of coma, convulsions, transient hemiparesis, blurring of the optic disks and elevation of blood pressure to levels of 200/140 mm. of mercury. Both patients recovered without residual signs within a few days of stopping the hormones. Significant elevation of blood pressure during hormone administration requires careful observation or immediate cessation of therapy.

2. Mental Disturbances: A sense of well-being even in the presence of debilitating disease is a frequent early effect of treatment with pituitary adrenocorticotropic hormone or cortisone acetate. Sleeplessness is frequently noted during administration of these hormones. After several weeks of hormone administration a state of depression sometimes develops. Two of our patients have committed suicide during such a state

depression. Delusions have occurred in a few patients after several weeks of hormone administration, e. g., a sense of a peculiar body odor, a sense of shrinking of the extremities to "matchstick" size, a sense of rising into space. Depression, delusions or psychotic manifestations probably demand immediate cessation of therapy.

3. Pyogenic Infections: Lowered resistance to skin infections has been previously noted in patients with Cushing's syndrome. Prolonged administration of pituitary adrenocorticotropic hormone or cortisone acetate may impair the localization and resolution of pyogenic infections. Administration of either of the hormones should not be continued in the presence of infections which fail to respond rapidly to specific therapy.

SUMMARY

Experimental studies of the effects of pituitary adrenocorticotropic hormone (ACTH) and cortisone acetate in 70 patients with various types of neoplastic disease are reported. Administration of these hormones has produced all the clinical and metabolic manifestations of Cushing's syndrome among various members of this group of patients.

Striking temporary shrinkage of enlarged lymph nodes, spleens and livers has been produced as a result of treatment with either agent in patients with chronic lymphatic leukemia, lymphosarcoma, acute lymphatic leukemia and acute granulocytic leukemia. Slight shrinkage of enlarged lymph nodes and spleens in patients with Hodgkin's disease has been observed during hormone administration.

Temporary remissions in patients with acute lymphocytic leukemia and acute granulocytic leukemia have been induced by pituitary adrenocorticotropic hormone and cortisone acetate. Temporary clinical improvement in one patient with plasma cell myeloma has been observed with the use of the two agents.

No significant improvement from hormone administration was seen in patients with acute monocytic or myelomonocytic leukemia, chronic myelogenous leukemia, malignant melanoma, neuroblastoma and several types of carcinoma and sarcoma. These agents are useful in the temporary palliation of patients with acute lymphocytic and acute granulocytic leukemia. Their possible therapeutic usefulness in chronic lymphatic leukemia, lymphosarcoma and multiple myeloma require further evaluation.

The control of the physiologic effects of pituitary adrenocorticotropic hormone and cortisone acetate in man are discussed.

Infinity.—As new stars and galaxies, untold billions of light years distant, are discovered and as still larger and more powerful telescopes are built, there is one mystery that may never be solved by man—the mystery of infinity. . . . It was not so long ago that science taught the indivisibility of the atom. Then we learned that the atom was only Nature's building brick that could be further divided into its components. And then we were told that there are protons and positrons, electrons and neutrons—and no serious-minded scientist would wager that we have reached the end of physical or even theoretical divisibility. For that matter, many begin to doubt that there is such an end. Thus, infinity may work both ways, and no matter how powerful our artificial eyes—the telescope and the microscope—might become, they may never cover more than a limited portion of a band that has no limits and infinity on either side.—*Technical Data Digest*, November 1950, page 4.

EFFECTS OF CORTISONE IN CERTAIN NEUROMUSCULAR DISORDERS

G. M. SHY, M.D.
S. BRENDLER, M.D.
R. RABINOVITCH, M.D.
and
D. McEACHERN, M.D.
Montreal

The effects of cortisone have been studied in 12 patients with muscular or neuromuscular disorders. The therapeutic results in some instances were dramatic, while in others they may throw some light on the mechanism of the conditions involved.

The studies were based on four patients with proximal girdle myopathy which appeared after the menopausal or climacteric period; two with dystrophia myotonica; one with myasthenia gravis; two with disseminated lupus erythematosus with severe muscular involvement; one with juvenile muscular dystrophy with severe contractures, and, finally, two with motor neuron disease manifested by bulbar palsy and amyotrophic lateral sclerosis.

INVESTIGATION

Muscle biopsy was carried out on all patients in order to confirm the clinical diagnosis as closely as possible. Eosinophil counts, basal metabolic rates, glucose tolerance curves and serum sodium, potassium, creatinine and uric acid levels were determined at three to five day intervals. Electromyograms on each patient were obtained before and during administration of the drug and more frequently on the two patients with dystrophia myotonica. All patients were kept on a meat-free diet, and daily 24-hour urine creatine and creatinine determinations were made.[1] Intake and output of fluids were recorded daily. Blood pressures were recorded twice daily. For each patient, an initial electroencephalogram was obtained and one also at the height of medication. Weights were plotted daily. Tests of muscle power were carried out, according to the individual patient's specific weakness, at almost daily intervals. For each patient a cholesterol control period was instituted after cessation of hormone therapy.

GENERAL RESULTS

In all but one case there was a prompt fall in the circulating eosinophils within four to six days after commencement of therapy. The one exception was a case of progressive muscular atrophy in a patient who maintained a persistent unexplained eosinophilia. Glucose curves rose to near diabetic levels in all cases. Our findings, unlike those of Milhorat[2] with pituitary adrenocorticotropic hormone (ACTH), indicated that the creatine: creatinine ratio remained almost constant, a source of disappointment to us. This may have been because levels of cortisone compatible with 150 mg. of pituitary adrenocorticotropic hormone were not used.

In no cases were electroencephalographic abnormalities detected during or after cessation of administration. This is of interest in view of the high percentage of electroencephalographic changes observed by Hoefer and Glaser[3] in their studies with pituitary adreno-

---

Project no. C-9 of the National Research Council of Canada.

Fellow of the National Research Council of Canada (Dr. Shy).

From the Department of Neurology and Neurosurgery, McGill University, and the Montreal Neurological Institute.

[1] Miss Mona Landy and Miss Doris Brophy gave technical assistance.

[2] Milhorat, A. T.: The Effect of ACTH in Myotonia Atrophica and in Progressive Muscular Dystrophy, in Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 588-595.

[3] Hoefer, P. F. A., and Glaser, G. H.: Effects of Pituitary Adrenocorticotropic Hormone (ACTH) Therapy, J. A. M. A. **143**: 620-624 (June 17) 1950.

corticotropic hormone. It should be remembered in this regard that these authors were dealing with different types of cases and that they were stimulating the production of many adrenal steroids in addition to cortisone.

Some fluctuations of serum cholinesterase[4] occurred, with a tendency toward depression. For instance, there was a fall from about 110 to 80 units in the case pictured in chart 1. This did not appear to be very significant, however, when compared with the great depression that can be obtained with anticholinesterases such as diisopropyl fluorophosphate. No appreciable change in basal metabolic rate occurred. Serum potassium and sodium levels showed no notable change. Unfortunately, we were not equipped for urinary potassium determinations, which might have been of greater interest than the relatively stable serum levels. All patients, with the exception of one with disseminated lupus erythematosus, had feelings of well-being and mild euphoria, and with the same exception all showed prompt water retention and weight gain. Only one patient had a significant rise in blood pressure.

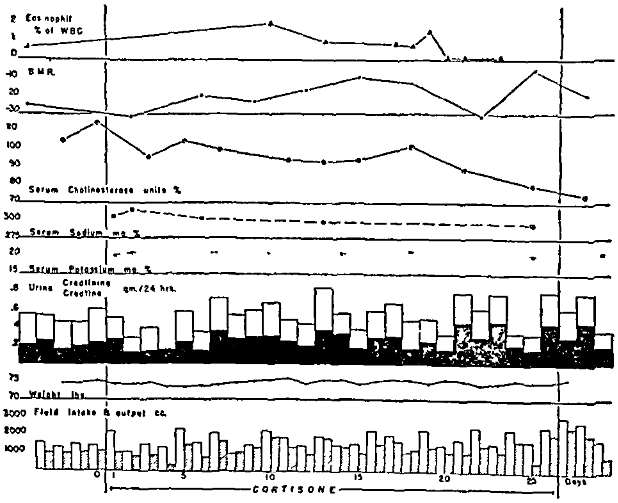


Chart 1 (case 1).—Absence of significant variations in sodium and potassium levels, although the myotonic response entirely disappeared.

It should be pointed out that because of the slow absorption of cortisone acetate, the effects of the hormone take some time, often five or six days, to become manifest. A similar period is required for the effects to wear off when administration is discontinued. Pituitary adrenocorticotropic hormone, on the other hand, works in a period of several hours.

SPECIFIC RESULTS

Dystrophia Myotonica.—Both patients were given 200 mg. of cortisone the first day and 100 mg. on each successive day. This was administered in depots of 50 mg. each. Aside from the general responses noted above, the most striking change was the complete abolition of the myotonic response.

Case 1.—A. C., a housewife aged 39, was admitted with the complaints of progressive wasting and weakness and difficulty of relaxation of all extremities for some six years prior to admission. Her speech had been impaired for the same period. She had been bedridden for about one year. One sister had the same illness, and one brother had voice changes but no other symptoms.

On examination there was marked muscle wasting (weight 76 pounds [34.5 Kg.]), most marked in the sternocleidomastoid, trapezius and shoulder girdle muscles and in the forearms and hands. The patient had a myopathic facies, opacity in the lenses of both eyes, dysarthria and a weak nasal voice. A typical myotonic response was obtained on percussion of the thenar eminence or the tongue. The electromyogram showed characteristic repetitive potentials on insertion of a concentric needle electrode, and these lasted from 70 to 120 seconds in the thenar eminences and in the tongue. The various biochemical and other changes are pictured in chart 1.

Within nine days after commencement of therapy no myotonic response could be noted either clinically or in the electromyogram. The dysphonia had improved until the patient's voice was audible at 30 feet (9 meters), whereas on admission she could be heard no farther than 5 feet (1.5 meters). She claimed that she had increased strength and could carry out certain tasks not previously possible, but no great objective change in muscle power could be made out during the 26 day period of therapy. The rather marked creatinuria was, if anything, intensified during treatment. The myotonia was beginning to return five days after the use of cortisone was discontinued.

Case 2.—G. P., a 32 year old woman, complained of inability to let go of objects in her hand. This had lasted for a period of seven months prior to admission. She had also had progressive difficulty in swallowing and nasal speech for the same period. The siblings of the family had the following afflictions: One man aged 27 had cataracts, nasal speech, testicular atrophy and myotonia; one woman aged 23 had nasal speech and myotonia; one man aged 43 had cataracts and premature baldness, and one woman, age unknown, had myotonia. Two siblings were not examined.

The patient on examination showed slow relaxation of the hand grip and myotonic oscillatory responses on insertion of a concentric needle electrode into the thenar musculature. She had a myotonic contraction on tapping the thenar muscles and the tongue.

All the myotonic phenomena had disappeared in this patient by the eighth day of treatment.

The second patient did not have such profound weakness and wasting as the first, but each felt some increase in muscular power. This was demonstrated clinically by weight and pulley tests. Both patients gained considerably in weight. It is of interest that the biopsy wound in the latter patient was as fresh and unhealed at the end of 12 days' therapy as it was on the day of incision. It healed normally when the administration of cortisone was discontinued.

This abolition of the myotonic response corresponds to the action of the 11-desoxycorticoids (mineral corticoids), as noted by Harvey and Brown[5] in myotonic goats. Since the speech defect did not disappear along with the myotonia, it is probable that it is due to muscle weakness and not to myotonia.

Disseminated Lupus Erythematosus.—Case 3.—O. K., a 20 year old female stenographer, had been in good health until six weeks prior to admission. At that time she began to complain of rapidly progressive weakness and stiffness of the upper and lower limbs, more marked proximally. There was edema of the face, the involved muscles and the overlying subcutaneous tissue. She had noted a red rash over the face, nose, ears and chest. On examination she showed extreme difficulty in talking and swallowing and had to be fed by tube. There was an erythematous, scaly eruption over the upper eyelids, cheek, bridge of the nose, ears, area of the chest, elbows, hands and feet. There was a tachycardia (pulse rate 160 a minute), with some cardiac enlargement. Weakness of the shoulder and hip muscles was so profound that she could not lift her arms or legs from the bed. All involved muscles were swollen and felt "boggy" but were not especially tender on pressure. Early contractures were developing, however. There was fever (temperature 101 to 103 F.) and an elevated sedimentation rate. The picture then was one of a constitutional reaction plus an acute dystrophic process in the voluntary muscles. Muscle biopsy disclosed the appearance of a diffuse myositis.

---

[4] Odom, G.; Russel, C. K., and McEachern, D.: Myogram, Blood Cholinesterase and Effect of Prostigmine in Myasthenia Gravis and Progressive Muscular Atrophy, Brain 66: 1-17 (March) 1943.

[5] Brown, G. L., and Harvey, A. M.: Congenital Myotonia in the Goat, Brain 62: 341-363 (Dec.) 1939.

This patient received 200 mg. of cortisone daily for nine days. On the eighth day a profound diuresis began, and on the tenth day the use of cortisone was discontinued and pituitary adrenocorticotropic hormone therapy was initiated in daily doses of 160 mg. This was given in four divided doses. On the sixth day of pituitary adrenocorticotropic hormone therapy, all clinical signs of intracellular excess fluid had disappeared and the weight drop had reached its maximum. The patient then began to retain fluid again, and the moderate weight increase can be seen in chart 2. At no time did the muscles regain their original "boggy" feel. No increase in muscle strength could be detected. At no time was she able to lift her head from the pillow, and she had to be fed by tube until the time of her discharge. The basal metabolic rate of this patient fell, as might be expected from the weight loss. Creatine excretion was lowered to some extent during treatment. The pulse rate fell from 160 to an average of 96 a minute, and the body temperature fell from 101 F. to a normal base line. The skin lesions became less marked. There was thus a marked improvement in the constitutional symptoms but none in the acute dystrophic process in the skeletal muscles, although hormone therapy was continued for a total of 35 days. This patient has since died.

Case 4.—A. S., a female journalist aged 35, was well until July 1948, two years before admission, when there was rapid onset of pain and swelling in the joints of fingers, wrists and ankles. Sulfonamides were administered, and the patient recovered in August 1949. There was a recurrence, along with fever and a red scaly eruption over the extensor surfaces of the legs, elbows and wrists, with generalized aching throughout the body. This was followed by a scaly red rash over the nose and the malar regions.

From January to April 1950, the patient was treated with desoxycorticosterone acetate (percorten®), 5 mg., followed immediately by intravenous injections of 1 Gm. of ascorbic acid in 10 per cent solution. This treatment was maintained with 4 injections a week, without improvement. In April pregnenetriolone acetate (prenolon®), 200 mg., and salicylates, 40 grains (2.59 Gm.), were given daily, without improvement. She was hospitalized from April 12 to April 22, and at this time had several febrile episodes. No lupus cells were found on sternal puncture or in the buffy coat of the blood. The condition continued and her weight fell from 116 to 96 pounds (52.6 to 43.5 Kg.). At the time of admission to our hospital, on June 4, 1950, it was found that she had been unable to walk since April 22 because of muscular weakness.

Examination showed a systolic gallop rhythm and a questionable pericardial friction rub. The blood pressure was 110 systolic and 70 diastolic. The pulse rate was 100 to 110. The lymph nodes were palpable in the neck, axilla and groin, and they were tender. There was generalized skin and muscle tenderness, and the skin seemed slightly indurated. There was bilateral foot drop with achilles tendon contracture. The extensor hallucis longus, tibialis anticus, extensor digitorum communis groups in the foot and the gluteus muscles at the hips could not move against gravity. There was also severe weakness of the iliopsoas, quadriceps, deltoid, supraspinatus and triceps muscles. All muscles were tender to palpation. The patient was bedridden.

The use of cortisone acetate was started in doses of 200 mg. the first day and 100 mg. daily thereafter. This was administered in depots of 50 mg. each. By the fifth day most of the pain had disappeared, the patient was afebrile, and, unlike the case 3 results, the more severely affected muscles had recovered power against gravity. By the seventh day muscle power against resistance had almost reached a normal level. On the evening of the seventh day the patient walked for the first time in almost four months. The rash now has almost completely disappeared. At the time of writing (ninth day of therapy), she is starting to ascend and descend stairs. Moderate contractures at the various joints have disappeared. In this instance both the constitutional reaction and the profound muscular weakness disappeared with incredible rapidity, and the patient gained 7½ pounds (3.43 Kg.) in the five days preceding the draft of this report.

These two cases should emphasize the facts that muscle changes may be predominant in this little understood condition and that skin changes and other phenomena may be mere highlights pointing the way to diagnosis.

Juvenile Muscular Dystrophy with Collagen Changes.—Case 5.—J. S., aged 29, gave a history of progressive weakness and wasting of the arms and legs, beginning in early childhood and becoming prominent at 13 years of age. He had been unable to stand or sit unsupported for two or three years. For the past four years he had been unable to flex the neck or spine and was "stiff as a poker." This was apparently due to ligamentous changes or to muscle contractures and not to bony ankylosis. Roentgenograms showed no arthritic changes. No siblings were similarly affected.

Examination showed generalized muscular wasting, without involvement of the intrinsic musculature of the hands and feet. There were flexion contractures of the elbows and knees and fixation of the spine in hyperextension. There was no myotonia. The entire picture was quite different from pseudohypertrophic muscular dystrophy.

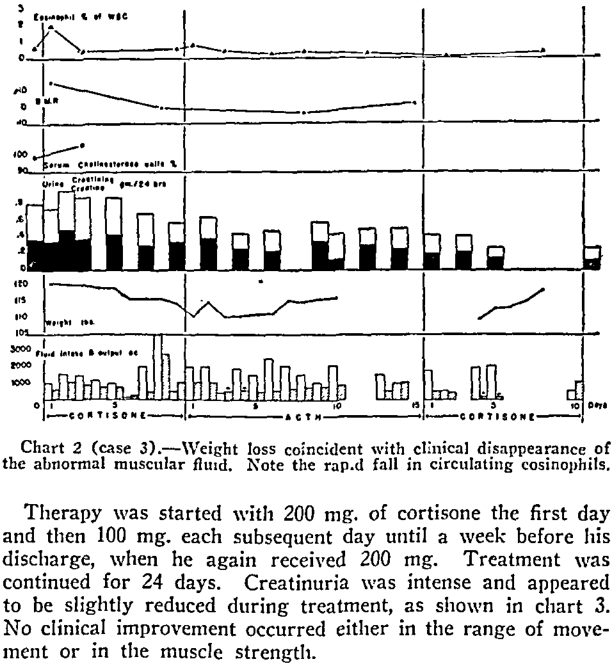


Chart 2 (case 3).—Weight loss coincident with clinical disappearance of the abnormal muscular fluid. Note the rapid fall in circulating eosinophils.

Therapy was started with 200 mg. of cortisone the first day and then 100 mg. each subsequent day until a week before his discharge, when he again received 200 mg. Treatment was continued for 24 days. Creatinuria was intense and appeared to be slightly reduced during treatment, as shown in chart 3. No clinical improvement occurred either in the range of movement or in the muscle strength.

Theoretically this seemed to be our most promising case for trial of cortisone, but perhaps the condition was too advanced.

Progressive Muscular Atrophy—Motor Neuron Disease.—Case 6.—E. F., a 48 year old nurse, complained of progressive difficulty in swallowing and articulation for one year. Five months before admission she noticed wasting and weakness of the muscles of the hands and, more recently, those of the thigh. Involuntary twitchings had been noticed in these muscles for five months.

On examination it was found that the mouth could not be voluntarily closed and drooled saliva. The eyes could not be closed voluntarily but could close reflexly. The tongue could not be projected, and it showed gross wasting and fasciculation. On attempted phonation, there was no movement of the soft palate or pharynx. The jaw jerk was greatly increased. There was weakness and fasciculation of both forearm and thigh muscles, as well as profound wasting of the intrinsic musculature of the hands. The abdominal reflexes were absent, the deep tendon reflexes increased and the right plantar response equivocal.

At that time the patient presented the terminal stages of motor neuron disease, with both bulbar and pseudobulbar palsy and amyotrophic lateral sclerosis.

During the administration of cortisone no improvement was noted, although a daily dosage of 200 mg. in four divided depots was maintained. Fasciculations were so variable that it cannot be stated that cortisone affected them.

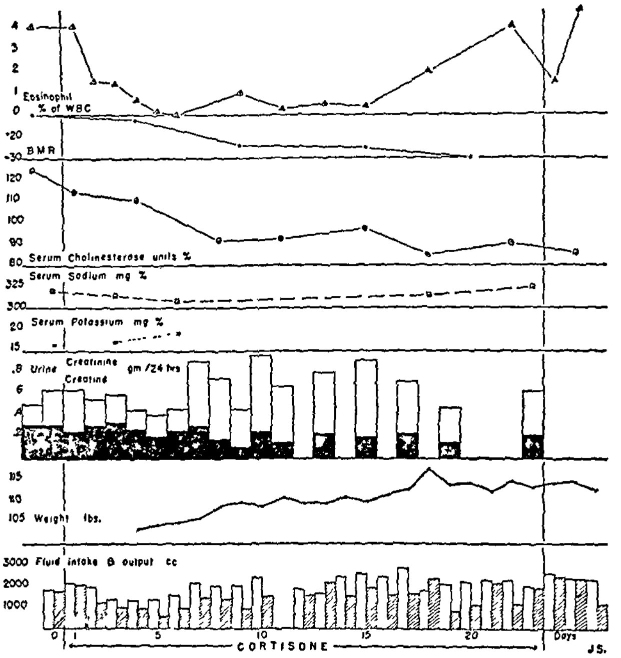


Chart 3 (case 5).—Response to cortisone therapy demonstrated by the eosinophil fall and weight gain of the patient. No improvement in the muscular condition could, however, be demonstrated.

The failure to affect the course of this disorder is in agreement with the results published by others.[6] It is of interest that the patient had unexplained eosinophilia and low grade fever, which persisted during cortisone administration.

Case 7.—L. B., a 38 year old housewife, had a history of progressive weakness and stiffness of the legs and arms, particularly of the hands, for approximately 14 months. She, like patient E. F. (case 6), had had difficulty in speech and swallowing for about ten months.

Examination disclosed wasting and fasciculations of the interosseus, quadriceps and tongue muscles. The deep tendon reflexes were increased, and the plantar responses were extensor. Biopsy demonstrated denervation compatible with motor neuron disease.

The patient received 200 mg. of cortisone the first day and 100 mg. daily thereafter for a total of 21 days. Aside from a mild euphoria, no clinical improvement could be detected.

Myasthenia Gravis.—Case 8.—G. H., a 29 year old truck driver, had noticed progressive weakness and fatigue of the facial and neck muscles, so that his head occasionally fell backward in the morning on rising. He also had difficulty in chewing, swallowing and speaking, and he tired rapidly. He gave a history of some weakness and fatigue of the arms and legs for the past year. The response to neostigmine was good.

Examination showed marked weakness of the facial, masticatory and pharyngeal musculature. There was also marked weakness of the neck muscles and the muscles of the shoulder girdle, most marked in the deltoids. He had a lobulated neoplasm in the anterior mediastinum, visualized on roentgen examination. Prior to the initiation of cortisone therapy, this patient could carry on fairly normal activities with 180 mg. of neostigmine bromide a day.

The patient suffered a severe exacerbation of his myasthenic symptoms while under cortisone therapy. This was so marked that he could not swallow or chew his food or maintain his head erect, even while receiving 270 mg. of neostigmine bromide. At this stage, the sixth day of administration of 100 mg. of cortisone daily, the administration of cortisone was stopped. The patient gradually returned to his preadministration level over a 10 day period. He did not appear to rebound to a state exceeding his precortisone level of power or stamina, as was observed by Torda and Wolff[7] in their studies with pituitary adrenocorticotropic hormone.

All these results may be important in terms of the mechanism of myasthenia gravis, even though they do not offer immediate therapeutic prospects. No decrease in size of the thymic shadow could be demonstrated by roentgen examination at the height of therapy, such as was reported in one case of Soffer and his associates.[8] Adrenal cortex hormones are known to shrink the thymus,[9] but it is only a matter of speculation as to what part this might play in the disease mechanism. The response is demonstrated in chart 4.

Myopathy Appearing After Menopause.—We have coined the term "menopausal myopathy" to describe proximal muscular weakness involving the pelvic and shoulder girdles which appears in the years following the menopause, or the climacteric. Patients with menopausal myopathy have great difficulty in climbing stairs or in rising from a chair, and are subject to unpredictable falls due to sudden giving away of the legs. This condition can be easily missed and may be attributed to the general enfeeblement of age. Strength in the hands and feet remains great, however, and, what is more, the condition appears to be reversible. No wasting of the affected muscles can be demonstrated, as a rule. Following is a typical case.

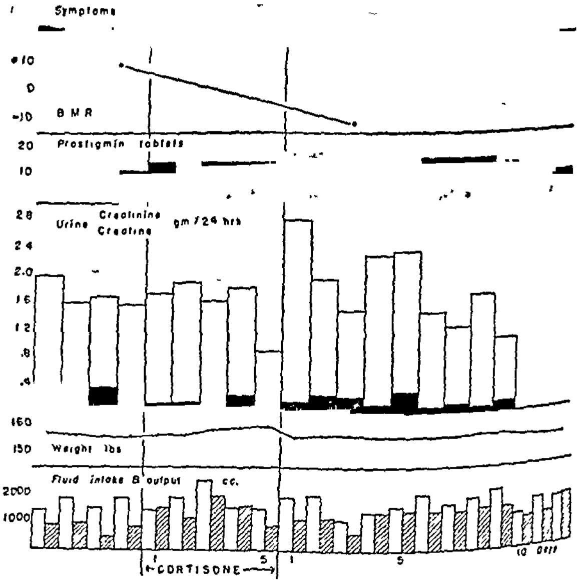


Chart 4 (case 8).—Increase in severity of symptoms in the patient with myasthenia gravis at the fourth to fifth day after cortisone administration. Note the exacerbation occurred in spite of increased neostigmine administration.

---

[6] Randt, C. T.; Traeger, C. H., and Merritt, H. H.: A Clinical Study of ACTH on Chronic Neurological Disorders in 7 Patients, in Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 595-603.

[7] Torda, C., and Wolff, H. G.: Effects of Adrenocorticotropic Hormone of the Pituitary Gland on Neuromuscular Function in Patients with Myasthenia Gravis, in Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 575-588.

[8] Soffer, L. J., and others: The Effects of Anterior Pituitary Adrenocorticotropic Hormone (ACTH) in Myasthenia Gravis with Tumor of the Thymus, J. Mt. Sinai Hosp. 15: 73-82 (July-Aug.) 1948.

[9] McEachern, D.: The Thymus in Relation to Myasthenia Gravis, Medicine 22: 1-25 (Feb.) 1943.

Case 9.—R. P., a housewife aged 53, complained of slowly progressive weakness of the lower limbs, more marked on the left side. Symptoms began several months after her menopause, three years prior to admission. She had extreme difficulty in rising from a sitting position and in climbing stairs. Previously, she had undergone surgical removal of both breasts for bilateral cystic mastitis.

Examination showed no obvious muscular atrophy, but normal muscle resiliency was absent on palpation. A myopathic progress was confirmed by biopsy of the thigh muscle. There was a marked degree of weakness of the quadriceps, gluteus and adductor muscles. Some weakness was also present in the shoulder girdle muscles, the distal musculature being relatively spared. Deep tendon reflexes were absent in the lower extremities.

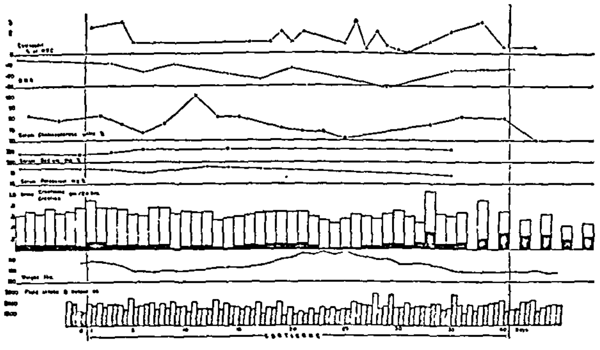


Chart 5 (case 9).—Weight variations in this patient as the cortisone dosage varied (detailed dosage schedule is given in text). This patient improved markedly on cortisone administration.

On admission this patient could climb only five steps in 20 seconds, using her hands on the railing. After cortisone therapy she could climb 40 steps in the same time without the use of her hands. She received 200 mg. of cortisone the first day, in four depots, and then 100 mg. a day in two depots until the eighteenth day. The dose was then increased to 200 mg. a day until the twenty-third day when, owing to the pronounced weight gain shown in chart 5, the dosage was decreased to 50 mg. daily for the remainder of the course of treatment. She voluntarily drew attention to the fact that her mastectomy scars had softened. Six days after the cholesterol control period was instituted, muscular weakness returned, and in the following weeks she had several bad falls. We are now trying to work out a maintenance dosage.

Case 10.—B. M., a housewife aged 59, noted the onset of her difficulty in climbing stairs and rising from a sitting position approximately six months after her menopause, in 1940. She became bedridden. Wheat germ oil was added to her diet in 1942, with such remarkable results for three or four years that the patient led an active life. Since 1947 she had again deteriorated, although use of wheat germ oil medication was continued. At the time of admission she could no longer manage stairs and could walk only with a cane. She also had episodes of sudden falls without warning.

On examination, the muscles involved were of soft, fluctuant consistency, and there was marked weakness of the proximal girdle musculature, severest in the lower extremities. Again, the distal musculature was relatively spared.

This patient received 200 mg. of cortisone the first day in four depots and 100 mg. daily thereafter. After eight days she showed a threefold increase in power on weight and pulley tests and was able to rise from a chair and climb stairs without the aid of her arms for the first time in eight years. This patient also suffered from mild gouty arthritis, and she became free of pain during the administration of cortisone. The pain returned during the cholesterol control period.

Case 11.—R. McG., a 58 year old farmer, first noted weakness of the legs eight months prior to admission. This was most noticeable in bending to pick up objects, in sitting or rising from chairs and in climbing stairs. He also had great difficulty in rising from a lying position and did so by turning on his abdomen and climbing up his legs with his hands. Five months before admission he noted weakness of his arms but not of his hands. He had difficulty in lifting objects, in getting into and out of clothing and, finally, in shaving and combing his hair.

On examination flexion at the hips was limited to passive movement at 70 degrees bilaterally. There was moderate weakness of the supraspinatus, infraspinatus, teres, deltoid, triceps and biceps muscles. There was no weakness of the wrist extensors or flexors or of the intrinsic hand musculature. There was marked weakness of the iliopsoas and gluteus muscles, and the legs could not be elevated from the bed. There was moderate weakness of the quadriceps, hamstring and adductor muscles. Occasionally gross twitchings of the muscles occurred with movement. They led to the suspicion of motor neuron disease but appeared to be more in the nature of uncoordinated muscular contraction. There were no pyramidal tract signs.

This patient received 200 mg. of cortisone the first day and 100 mg. daily thereafter in depots of 50 mg. for a total of 21 days. He improved markedly, and for the last seven days before discharge he could lift his legs voluntarily 30 consecutive times from the bed. This patient had an almost normal creatine: creatinine ratio, and this was unchanged during cortisone administration. The condition appears to be another example of proximal myopathy of the climacteric period. We are at present attempting to establish a maintenance dosage.

Case 12.—E. V., a 58 year old laborer, was admitted with an eight month history of progressive weakness of the pelvic and the shoulder girdle muscles. He received cortisone, 200 mg. the first day, and 100 mg. each successive day. No improvement could be ascertained. A definite myopathic involvement of the quadriceps femoris was revealed by biopsy.

All patients gained weight and had diuresis during the control period. Myopathic changes in all cases were confirmed by biopsy.

Increasing muscular weakness began to reappear in both women and in one man about five days after the administration of cortisone was stopped, but improvement set in again when treatment was reestablished.

It is of interest that out of the large number of patients (107) with neuromuscular diseases that we have treated with wheat germ oil[10] in the past, improvement has been noted in the small group with menopausal myopathy.[11] They have also had relapses when use of wheat germ oil has been discontinued for several months. This brings up the question whether wheat germ may not contain building blocks for steroid hormones.

SUMMARY

Twelve patients with various neuromuscular disorders have been treated with cortisone.

In two patients with dystrophia myotonica the myotonic response was completely abolished by cortisone therapy *during the period of treatment*. Improvement in the dystrophic state was doubtful.

One patient with generalized lupus erythematosus and an acute dystrophic process in the skeletal muscles showed marked improvement of the constitutional state. There was, however, no improvement in muscle power. Another patient, with less severe manifestations of this disorder, improved dramatically, and muscle power returned to normal.

One patient with juvenile muscular dystrophy with collagen changes and two patients with motor neuron disease were unimproved by cortisone therapy.

One patient with myasthenia gravis was made worse by cortisone therapy but returned to his previous status

---

[10] VioBin (Canada) Ltd.

[11] Rabinovitch, R.; Gibson, W. C., and McEachern, D.: Some Neuromuscular Disorders Amenable to Wheat Germ Oil Therapy, to be published.

on discontinuance of treatment. This observation may be important in terms of the mechanism of myasthenia gravis.

Two women with menopausal muscular myopathy showed decided improvement while being treated with cortisone. One man also improved on the same therapy and dosage, but another man failed to improve. This condition in women previously had been found to respond to wheat germ oil therapy but with a longer time lag.

CAUSES OF FEAR AMONG OBSTETRIC PATIENTS

Chairman's Address

JAMES RAMSDELL BLOSS, M.D.
Huntington, W. Va.

It is a great privilege to have for review almost a half century of activity in any field of human endeavor. One of a previous professional generation may be forgiven if he views with amazement and awe his temerity in having attempted to undertake the responsibilities that he had to assume with an armamentarium so primitive when compared with that at his command today. As one who has been a part of those years of matchless professional progress and scientific accomplishments (even though in such a minor role as has your chairman), I wish to present some thoughts for consideration with the hope that they may have something of constructive value to commend them. Years of experience with a passion for the detailed clinical observation of each patient as an individual entity will of necessity develop a physician's diagnostic acumen, his ideas and opinions and the accuracy of his considered final judgments and therapeutic endeavors.

The wife of a physician had been delivered by one of America's well known obstetricians. For a subsequent delivery he referred her to one of the most prominent protagonists of the psychosomatic school of obstetric practice. Some months after her second delivery she remarked to her former attendant, "I had actual scientific care, but if I should choose my obstetrician I would prefer sympathy and human kindness first and scientific care second." A thought to give one pause, is it not? May it not be possible that those who have been endeavoring to teach undergraduates, interns, residents and postgraduate students are neglecting one of the basic fundamentals of medical training? At times one wonders whether there is not a great need to instill in medical leaders the ability to teach and practice the art as well as the science of medicine.

FEARS WITH PSYCHOLOGIC BASIS

With this thought in mind, humbly making my obeisance to the psychosomaticists of my specialty, it seems timely and germane to discuss some of the causes of fear among obstetric patients. The importance of such a discussion has been particularly impressed on me in recent years by the experiences of my associates and me in the antepartum care of our patients. In the women's magazines the numerous articles dealing with the dangers contingent on the discovery that a prospective mother has Rh-negative blood or the utopian claims for the advantage of continuous caudal anesthesia over saddle block and other technics of analgesia and anesthesia, seem to me to have done harm in that the mental perturbation they have caused among pregnant women is much greater than any good they have accomplished.

The experiences of life over the years reveal that most of the fears which beset everyone from time to time are needless. Many years of obstetric practice convinces me that one of the most important accomplishments of the obstetrician is his ability so to guide his parturient patient through her antepartum period that she shall approach the time of her delivery unafraid, rather "as one who wraps the drapery of his couch about him and lies down to pleasant dreams." The practice of the obstetric art requires much time and infinite patience, and thrice blest is he who has been so fortunate as to have also had previous training and experience in clinical psychiatry. It might be well to require that a certain amount of the time of the obstetric and gynecologic residency be given to this branch of medical study as is done in pathology in relation to the specialty.

Seldom does the obstetrician see cases of such severe antepartum mental disturbance that a psychosis is diagnosed and treatment instituted. Most frequently this state of affairs goes unrecognized and untreated, yet it would seem hardly possible for such experiences not to produce some effect on the average patient.

In no field of my medical experience has it been noted that the home environment and the influence of parental guidance of children is so evident as in the observation of women during the period of professional contact as their obstetric attendant. Prolonged indulgence and protection by unwise parents results in an incapacity to face realities, to realize and evaluate personal responsibility or to make decisions. They are parasites in that they live on the mental and moral strength of others. Naturally, persons in this category are capable of only poor mental adjustment to the unsatisfactory situations and conditions of life and are prone to have a negligible ability for endurance or for making personal sacrifices.

In contrast there are other persons who face all the problems of life unafraid. They solve and overcome the issues, whether great or small. They adapt themselves to meeting sorrow and joy, disappointment, accomplishment, the anxiety and pain of illness, poverty or wealth on an even mental keel. These persons are psychologically evolved or mentally mature.

If one has a clear understanding of these psychologic factors it will aid immeasurably in the approach to and the solution of the maternity patients' problems in the realm of fear. The next important point is that the obstetrician must secure the most complete confidence of his clientele. After this is achieved it is then usually easy for these parturient women to express their mental doubts and fears. With this accomplished the outcome of their struggle to overcome the unhappy mental state is far less in jeopardy. To the patient these fears are very real, and it is a grave error in therapeutic strategy to belittle them or to permit the patient to feel that one is not giving serious and considered thought to their disturbing problems. By all means avoid giving the impression that one regards their fears as ridiculous.

To catalogue all the fears which have been revealed to me by parturient women during the years I have spent in the practice of obstetrics would be an intermina-

---

Read before the Section on Obstetrics and Gynecology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

ble undertaking. Probably among the most frequently encountered may be mentioned that they will lose their willowy figures; that they may lose their sex attraction or function; that their physical appearance during pregnancy will affect the husband's affection and future love for them; that pregnancy may occur at the climacteric period and that there is increased danger of complications when they are past 35 years of age; that if they nurse their offspring the effect on their streamlined appearance will be disastrous, to say nothing of tying them down and interfering with their social activities. In this group should be included the fears of having a deformed or mentally defective infant because of an unsuccessful attempt to produce an abortion, of marking the unborn infant by a fright or shock during pregnancy and of the influence of heredity. This bizarre group of fears is extremely real to patients as individuals and is of important significance in producing mental and emotional conflicts.

BASIC CONFLICTS

It will be of assistance in the care and management of this type of parturient women for one to have some understanding of what these psychic conflicts are and of the mechanism of their development. Despite women's statements to the contrary and their efforts to conceal it from those about them, experienced clinicians, particularly those of the obstetric fraternity, believe that since the dawn of creation the dominant basic feminine instinct is that of reproduction. It is truly primal in all living creatures and in many is more powerful than that for the preservation of life itself. In those women who deny this there is definitely a reason, possibly a subconscious one, which is not in harmony with the idea of motherhood. The woman may be, from environment and training, vain or selfish. She does not wish to make the needful personal adjustments for fear that she may lose the grace and charm which she may be convinced are so outstandingly hers or that she may have to forego the luxury of personal physical comforts which she may be accustomed to enjoy. With such strong and antagonistic feelings one may readily understand how there does develop a psychic conflict, at times of tempestuous character, with the primal maternal instinct. The mentally mature or psychologically evolved woman will, with little or no help, reason out these situations and satisfactorily adjust herself to making all sacrifices of convenience and personal luxuries for the accomplishment and joy of motherhood. With the unevolved person the problem is much more complicated and trying for all concerned. Only experience and a genuine interest in the welfare of his patient can guide the understanding obstetrician.

There is no accurate method for securing a dependable statistical study on the frequency of attempted abortion. Certainly this must be much commoner than is ordinarily realized. It is generally the fear of having a physically or mentally abnormal child which is revealed to the physician in his professional capacity. Careful psychologic study over many years leads me to the conclusion that it is not so much the stated fear of the results of attempted abortion as it is the desire to get the burden of mental guilt off their conscience and to learn the medical attendant's view of the spiritual gravity of their sinful desire in the attempted destruction of the unborn child.

Over the years I have seen no instance in which an unsuccessfully attempted abortion has been followed by the birth of a physically abnormal or deformed child. Many of the resultant children are now adults, and in them I have noted no mental abnormalities which might not much more appropriately be attributed to their inherited familial genes and chromosomes. Certainly there has been no congenital absence of gray matter due to the unsuccessful outcome of an attempt to produce an abortion. A kind heart, an understanding experience and something approaching at least a speaking acquaintanceship with the Almighty will be needed to guide one in answering these unexpressed but momentous questions of spiritual guilt.

The fear of death and the development of complications is another of the more frequent causes of mental unrest in the antepartum period. This fear of death and disease is not an uncommon one for most persons to have, nor equally so is reticence in confessing such a fear. It does not occur to the relatives and close friends of a pregnant woman, as they gossip and recount the unhappy experiences of other women during labor, that she may be having such a difficult mental struggle.

Everyone has had to deal with such situations and at times has been at wit's end as to how to solve the problem. Personally it has proved most satisfactory to discuss these experiences as frankly as may be possible and to point out that countless women have come safely through the ordeal of motherhood. Then call attention to all the safeguards employed by the modern obstetrician to forestall such occurrences and to the special care being exercised in her case to prevent the possibility of such a catastrophe.

Even in this enlightened day the fear of "marking" the unborn child still exists. The witnessing of some accident, being bitten by pets, seeing or being frightened by reptiles and unreasonable cravings for unseasonable foods are still credited as being infallible etiological factors in such occurrences. The psychosomatic approach handles these patients most satisfactorily.

FEARS WITH LEGITIMATE BASIS

Some fears are without the realm of those just discussed, in that there is a basically legitimate reason for them. In this group is the question of possible transmission of syphilitic infection to the offspring. In spite of all the educational efforts being made, I am still having to answer questions on the possibility and probability of such a congenital misfortune. Thanks to the scientific advances in today's therapy of syphilitic infection, one may with confidence assure antepartum patients that this may be erased from the list of their fears.

A word of caution in regard to the interpretation of the routine standard study of the mother's blood for syphilitic infection may not be amiss. In a few rare instances faintly positive reactions may be found during pregnancy in hypoendocrine women. The reaction is usually approximately similar to that noted in an inadequately treated patient in the day of mercury, bismuth and arsenical therapy. Metabolic studies will reveal a minus reading. It will be noted also that the positive serologic reaction disappears a few days after delivery. Further, the blood of the infants will not give this positive reaction. Many years ago a near fatal outcome in administering antisyphilitic therapy to two such patients was a most harrowing experience.

A half century ago, when pregnancy occurred in a person with tuberculosis, diabetes or a cardiac impairment, it was believed that the pregnancy was of primary concern and that the preexisting condition was to be considered as a complication. As time passed this view has changed, and today the obstetrician realizes that the realm of his professional activity is the supervision of the pregnancy as a complication of the preexisting physical impairment of the person. In the management of such patients it is of imperative importance that the closest cooperation of an experienced internist be sought. Few obstetricians will consider themselves professionally competent to guide and direct the treatment of the primarily existing illness. The responsibility for the parturient phase of such a situation seems sufficient for one person to assume.

As I look back over the years nothing is more striking than the changed attitude in regard to pregnancy occurring in the woman ill with pulmonary tuberculosis. Naturally this as a cause of fear is understandable. Formerly it was generally believed that pregnancy allowed to continue practically sounded the death knell for the patient. Thirty or forty years ago physicians were advised that pregnancy complicated by an acute, or even an arrested and quiescent, tubercular infection should promptly be terminated by therapeutic abortion. The observation that among those who refused this drastic therapy a certain number actually seemed to be improved led some obstetricians to advise against this course and to insist on completion of the pregnancy with redoubled efforts in the treatment of the tubercular infection with rest, sunshine, fresh air, food and such tonic therapy as might seem indicated. The results were illuminating and the outcome eminently more satisfactory than those with the previous methods of handling such patients.

Today the scientific management of the tuberculous patient has, to a pronounced degree, removed the fear of pregnancy as a complication. With the development and skilled employment of collapse therapy and the rigid adherence to her hygienic regimen, the patient goes through her pregnancy and delivery with no detectable injury or exacerbation of her tubercular infection. I believe that one of the most outstanding accomplishments in the obstetric management of these patients is the employment of the spinal block method for securing relief from the pain of delivery and the use of the less depressing technics for securing analgesia during labor.

Incidentally, it seems advisable to emphasize most careful examination of the chest of the pregnant woman. Recent surveys indicate that a much larger number of persons have tubercular pulmonary involvement than has been suspected. Studies reported statistically indicate that pregnant women do not present a variation in mortality or morbidity from that in a similar age group of an equal number of nonpregnant women who are tuberculous. Over the past 20 years my experience is in support of this conclusion.

Another outstanding accomplishment of modern medicine is in the technical handling of the diabetic patient when pregnancy occurs as a complication of the preexisting disease. Until the discovery of insulin and until experience was gained in controlling disturbances of metabolism in the diabetic person, the prognosis for these pregnancies was most discouraging.

When one is undertaking the responsibility of caring for a pregnant patient with glycosuria it is of primary importance to determine whether the patient has true diabetes mellitus. In the preinsulin period some clinicians believed that diabetes was responsible, to some extent at least, as a cause of sterility, the frequency of abortions, prematurity, stillbirths and anatomic abnormalities. Certainly the present day therapy for diabetic patients seems to have increased their fertility. My clinical experience with pregnancy as a complication of true diabetes mellitus has not been sufficiently extensive to permit the formulation of a definite opinion concerning the value of the hormonal therapeutic approach to the handling of these patients. Possibly it is not too much to hope that further research in the realm of endocrinology may eventually open this door.

In my years of obstetric prognostication I never have felt more helpless a prophet than when I find myself confronted with pregnancy complicating cardiac disease. At times one observes patients going apparently uninjured through a number of pregnancies and labors although they have valvular lesions which should by the ordinary rules confine them to bed even if they were not pregnant. Others with a seemingly much less serious condition will prove to have no cardiac reserve. Here professional judgment and skill are taxed to the utmost to carry them successfully through their pregnancy. There is no standardized therapy for these patients. Each must be truly individualized and handled as such. Few obstetricians have had a sufficiently extensive cardiologic experience to justify their assumption of such a dual professional role.

It is difficult to understand how a woman with preexisting cardiac disease could go through pregnancy and labor without being injured. The danger of pregnancy is decidedly increased in those who have had previous episodes of cardiac decompensation, regardless of whether they were at that time pregnant or nonpregnant. In the care of these cardiac parturients the most painstaking medical supervision is necessary. With this provided, it has not in my experience been deemed necessary to abort any of them therapeutically.

The problem of labor for the cardiac parturient was most perplexing in the days of inhalation anesthesia. Today with technics of analgesia, and particularly of spinal block and infiltration anesthesia, so scientifically perfected, labor has lost much of the danger formerly present. In my opinion certain of these patients should be delivered electively by abdominal section under spinal or local infiltration anesthesia. This has seemed especially advisable when the patient has severe mitral stenosis, aortic insufficiency or a combination of the two.

THE RH FACTOR

Probably all physicians have been harassed almost beyond endurance concerning Rh-negative blood. The unfavorable publicity noted in most of the articles concerning this condition which have appeared in the magazines of wide lay circulation have been of great harm to the peace of mind not only of parturient women but also of the recently married and of those contemplating matrimony. It is truly remarkable how many questions of a "now suppose" type arise under stimulus of the fear engendered by these magazine articles, when the Rh-negative condition is found to exist.

When the Rh factor was discovered and announced to the members of the medical profession I suspect that most of us felt about as the mathematicians must have, when Professor Einstein promulgated his theory of relativity. Since then it has become possible for these serologic tests to be made for the investigation of this subject at a cost which is economically practical. As a result of widespread and intensified study by many workers in this field, one may reply to questions of these persons about the Rh factor with the assurance that accumulating investigation and clinical experience make it possible to give a somewhat more intelligent answer and not a more or less oracular guess.

On July 1, 1946 I began a study of the Rh factor. At first the laboratory study of the Rh status of patients was made only when there was a history of previous abortion, prematurity or stillbirths or of previously received transfusions. This plan was followed until Jan. 1, 1948. Since that time the Rh factor has been checked in all women seeking obstetric service who had not been under my supervision subsequent to July 1, 1946. This is now done routinely whether or not the history reveals any of the suggestive leads previously mentioned. This study gave the following information: There was a total of 1,354 (85.86 per cent) Rh-positive and 223 (14.14 per cent) Rh-negative persons. Deliveries for the years 1947, 1948 and 1949 totaled 1,918. The deliveries for the final six months of 1946 were not included, because it was not practicable to study the Rh factor for those mothers first seen previous to July 1, 1946.

Two erythroblastotic infants were lost. One was stillborn; the second lived 36 hours and was atelectatic. The titer of this mother when last determined before the birth of the child was 1:680. Autopsy showed that both these infants were erythroblastotic. A third infant with an erythroblast count of 30 per cent at birth responded to transfusions and now is apparently a normally healthy child aged 2 years.

These studies reveal a number of facts which are not only interesting but of much assistance in discussing these matters with patients. First, a certain number of the husbands may be Rh negative. Three of the 99 Rh-negative parturients of 1949 had Rh-negative mates. Then one must bear in mind that a high percentage of Rh-positive men are heterozygous and will father Rh-negative offspring. The fact that many, possibly the majority, of Rh-negative women may bear two or even more Rh-positive infants before developing a sufficient immunization to produce an abortion or an erythroblastotic infant is to be borne in mind. One must not lose sight of the small mathematical probability of Rh-factor mismatings. It is possibly less than 0.5 per cent. As a final addition to the psychosomatic armamentarium for combating the fears of distraught parturients, the knowledge acquired in this particular field of hematological research enables one to give much encouragement for the survival of erythroblastotic infants by replacement transfusion of carefully selected blood.

It is not out of order to reemphasize the warning of the transfusion danger of giving Rh-positive blood to an Rh-negative person. Much can be done to lower the incidence of sensitization of Rh-negative females, whether infants or adults, by firm insistence that only blood of compatible Rh-negative donors be employed for needed transfusions.

The problem of determining what course to pursue in the delivery of these parturients must of necessity be individualized. When careful study reveals that the mother is not immunized or, if so, that the titer is low and the history does not reveal either a transfusion with Rh-positive blood or a previous erythroblastotic pregnancy, I do not consider it advisable to induce premature labor. My results under such conditions have been most satisfactory by awaiting the normal onset of labor. When conditions are the reverse, it seems advisable to terminate the pregnancy prematurely either by induction and vaginal delivery or by abdominal section, in the interest of the infant and its survival. A word of caution in connection with the decision to terminate the pregnancy prematurely. Do not terminate the pregnancy so far in advance of maturity that the child dies because of immaturity rather than erythroblastosis.

As a result of my personal, though not statistically large, experience I have come to the conclusion that as a cause for fear among obstetric patients the discovery of the negative Rh factor and its implications is not of such serious import as the disturbing publicity leads patients to anticipate.

SUMMARY AND CONCLUSION

Most causes of fear among obstetric patients are needless or not truly existent. However, some of them are not entirely baseless. These must be discussed frankly and encouragingly with patients, in the light of the scientific medical accomplishments of today.

Obstetricians and gynecologists must understand and practice the humanities as well as the science of the medical profession.

418 Eleventh Street East (1).

VERRUCAE, A DERMATOLOGIC PROBLEM

Chairman's Address

CLINTON W. LANE, M.D.
St. Louis

In dermatology there are many unsolved major and minor problems. In the major group are the collagen diseases, the lymphoblastomas and the disturbances of lipoid metabolism, all of which may affect health life. In the minor group are other dermatoses with a less pronounced effect on the general health but which may be most distressing to the patient, disturbing and baffling to the physician. The wart problem is therapeutic rather than diagnostic, not only because treatment is often ineffectual but because it is difficult to evaluate the results of treatment in lesions reacting as peculiarly and inconsistently as warts.

TYPES OF VERRUCAE

Warts are small, almost universally benign papillary overgrowths, which vary in size, color and shape. They are slightly commoner in women, but certain families seem to have a relatively greater resistance to infection with the wart virus than other families. Warts are autoinoculable and transmissible and may disappear without treatment. There are four distinct types: verruca vulgaris, verruca plana juvenilis, verruca plantaris and verruca acuminata.

Read before the Section on Dermatology and Syphilology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

Verruca vulgaris, the more commonly observed type, is a raised, circumscribed, solid, round gray or yellowish gray papule varying in size from 2 to 10 mm. The surface at first is flat and smooth but may become scaly, crusted, fissured or cauliflower-like. Warts may be single or multiple; frequently there is a primary "mother wart," which after a variable period of time is joined by other similar satellite lesions. They occur predominantly in children and adolescents and appear most often on the exposed areas, particularly on the hands and fingers, but any portion of the skin surface may be involved. Variants of this type are the threadlike filiform wart of the eyelids and face and the digitate warts which project from the scalp, face and neck.

Verrucae planae juveniles, known as flat warts, are slightly raised, small, flesh-colored, round or angular papular lesions which are distributed over the face, neck, hands and wrists. Almost universally multiple, these lesions occur most often in children and young women. They may be mistaken for vesicles or may closely resemble the papules of lichen planus and, rarely, those of molluscum contagiosum. They produce a "dirty" appearance of the face, when they have coalesced and are located on the chin.

Sites of predilection for verrucae of the plantar type are the padded areas of the soles and heels, less frequently the sides of the feet, the under surfaces of the toes, the palms and palmar surfaces of the fingers. There may be a single wart, but often there are small satellites in the vicinity of the original lesion. Differentiation from a callus and a clavus may be difficult but is facilitated by paring the surface of the verruca. A wart is revealed as a well defined, discrete, gray, round or oval area often containing small dark specks or threadlike lines, which are deposits of blood pigment. The blood has escaped into the basal layer from the dilated vessels of the hypertrophied papillae. If the surface of a callus or corn is pared, a smooth, hard yellow growth containing no blood stains is visualized.

A variant of the plantar wart is the so-called mosaic wart, which has been well described by Montgomery and Montgomery[1]:

> The warty patch is horny and granular with an irregular border and varies in width from 1 to 10 cm Comparatively painless, the patch is located under the pressure points and may extend onto the toes and behind the heels It is often mistaken for callus and may be present for years. Paring reveals the intracellular nature of the patch, which consists of many small individual cores so closely grouped that they resemble a mosaic pattern

Verruca acuminata, known also as condyloma acuminata and venereal wart, occurs chiefly on or about the genitalia and the anus, in the axillas and groins and on the navel. As single or multiple, discrete or confluent, raised, filiform or papillomatous lesions, whose surfaces are often moist and macerated from the secretions of the surrounding organs, they are attached by broad or narrow bases.

ETIOLOGY

Many fantastic theories have been proposed concerning the causation of warts. In the olden days they were often considered as the penalty for indiscretions and sins or as a manifestation of venereal disease. More recently they have been supposedly produced by contact with toads, frogs, lizards and other reptiles and animals. Kühnemann[2] in 1889 claimed that warts were produced by a bacillus, and in 1894 Jadassohn[3] produced warts by subepidermal injections of warty tissue. In 1919 Wile and Kingery[4] reproduced warts by the intracutaneous injection of warty tissue. They postulated that trauma and foreign bodies were portals of entry for an infectious agent, probably a filtrable virus. The incubation period was from four weeks to six months, and in one instance the warts were carried over successfully for two generations. In 1935 Templeton[5] reproduced warts by the intradermal injection of filtrate material and stated that the incubation period may be prolonged from 12 to 20 months. Brain[6] also claimed that it had been established that verrucae were produced by a virus infection. Rulison[7] stated, "The abnormal cellular hypertrophy is due to a local infection with a virus. Whether separate viruses cause the five different forms of verruca or whether the different forms are clinical variations resulting from one virus is unknown." Rudloff[8] believed that venereal vegetations and verruca vulgaris are sister growths due to the same filtrable virus, which manifests itself by papilloma formation on mucous membranes or on thin skin and by wart formation elsewhere.

SYMPTOMS

Verrucae of the vulgaris and flat type seldom produce symptoms severe enough to warrant therapy. Patients present themselves for treatment because they are embarrassed by the appearance and disfigurement of the lesions. This is particularly true if the verrucae are located on the face and hands. The pain and tenderness of plantar warts may be sufficient to seriously hamper the activities of the patient. Verrucae acuminatae may be sensitive, painful and malodorous and may interfere with function.

TREATMENT

The therapy of warts is a difficult problem, and many forms of treatment have been proposed. Wise and Sulzberger stated that "warts are among the most erratic and unpredictable of the dermatoses. Response varies from cases in which a look and a prayer suffice to cases in which lesions persist, recur and even increase despite x-ray, caustics and surgery."

Psychogenic Method.—From the early days of medicine down to the present certain men have believed strongly in the efficacy of the psychogenic method of treatment. In olden times magic was often employed and weird incantations were chanted, often in a graveyard or haunted house. A propitious time for such magic was the waning of the moon. In the modern era the suggestion method was used successfully by

---

[1] Montgomery, A H., and Montgomery, R H: Mosaic Type of Plantar Wart, Arch Dermat & Syph 57: 397 399 (March) 1948

[2] Kühnemann, G: Beiträge zur Anatomie und Histologie der Verruca vulgaris, Hamburg and Leipzig, L Voss, 1889

[3] Jadassohn, J: Are Verrucae Vulgares Communicable? Verhandl d deutsch dermat Gesellsch 5: 497 512, 1896

[4] Wile, U. J., and Kingery, L B. Etiology of Common Warts, J. A M A 73: 970 973 (Sept 27) 1919.

[5] Templeton, H J Long Incubation Period of Warts, Arch Dermat. & Syph 32: 102 103 (July) 1935.

[6] Brain, R T.: Viruses and Skin Diseases, Brit M J. 2: 191 194 (July 29) 1933

[7] Rulison, R. H: Warts Statistical Study of 921 Cases, Arch Dermat & Syph 46: 66 81 (July) 1942.

[8] Rudloff, J: Venereal Vegetations, Ann de dermat et syph 8: 23 25 (Jan) 1948

Bonjour,[9] who claimed that all warts are curable by hypnosis. He ascribed cures to the lowering of blood pressure. In 1927 Bloch[10] stated that he had cured 44 per cent of the vulgaris type and 88 per cent of the juvenile type by psychogenic therapy. His method consisted of placing the hands of a blindfolded patient on a vibrating motor, although no current was conducted to the person. The warts were painted with a colored fluid, and after the blindfold was removed the patient was told that the warts would disappear when the color faded. Bloch thought that suggestion provides a stimulus to the vegetative centers, which is conducted by the vegetative nerve channels to the warts. These nervous impulses cause biologic changes of a chemicophysical nature and damage the virus. However, Memmesheimer and Eisenlohr[11] studied 140 cases and found that after six months of observation there were more cures in an untreated group than in those treated by suggestion. There is no satisfactory explanation for the spontaneous disappearance of warts or for the cures produced by suggestion, except that the unstable structure of verrucae makes such results possible.

Peroral and Parenteral Therapy—Peroral medication has many advocates. Drugs reported as producing cures when given orally are mercury compounds, arsenic administered as Fowler's solution (potassium arsenite), arsenic trioxide and acetarsone,[12] dilute hydrochloric acid, thyroid, magnesia, calcium hydroxide solution, arbor vitae, sodium bisulfite, bismuth sodium triglycollamate (bistrimate)[13] and many others. Lurie[14] claimed cures in all of 34 patients who received one to three intramuscular injections of bismuth salicylate. In 1934 Shellow[15] injected potassium bismuth tartrate intramuscularly with good results in only 22.2 per cent of the cases. Sutton[16] endorsed the intravenous injection of neoarsphenamine and sulfarsphenamine, but Allington[17] obtained equally good results from an aqueous yellow solution as from sulfarsphenamine. Other injections reported favorably have been those of autohemotherapy, milk and autolysate material. By the latter method Cormia[18] was successful in 20 per cent of the cases of verruca vulgaris and Biberstein[19] claimed cures in 75 per cent of 139 patients.

Local Therapy.—In 1907 Pusey stated that the only reliable treatment of warts was local destruction. Goldsmith[20] agreed that "Since warts can and often do disappear spontaneously, it is difficult justly to evaluate the efficacy of any treatment that is not directly destructive." Drugs recommended for topical application or superficial puncture are castor oil, potassium hydroxide, acid nitrate of mercury, chromic, nitric and trichloroacetic acids, silver nitrate, phenol, chrysarobin, arsenic paste, Fowler's solution,[21] sulfur, Vleminck's solution and podophyllum.[22] Shellow[15] claimed cures in 91.7 per cent of patients whose warts were injected locally with bismuth potassium tartrate. A 50 per cent solution of urea was beneficial according to Mackay,[23] while Simmons[24] lauded a sclerosing solution. Ethyl chloride, solid carbon dioxide[25] and liquid oxygen[26] have been applied with success, while surgical methods which have been employed effectively are curettage, simple excision, electrolysis, electrodesiccation and actual cautery.

Radiation therapy has many advantages such as ease of application, absence of pain, noninterference with function and avoidance of secondary infection. Therapeutically, roentgen ray and radium are equally efficient, but Osborne and Putnam[27] cited certain advantages of roentgen radiation over radium: 1. Less time is required for treatment; (2) if warts are multiple, large amounts of radium or frequent applications of radium are required, and (3) radium is difficult to apply in some areas and is easy to displace. Most dermatologists prefer and employ roentgen rays, as evidenced by the reports of Hazen and Eichenlaub[28] in 1920, who claimed 93.7 per cent cures, of Michael[29] with 93 per cent cures in 1926 and of Osborne and Putnam,[27] who had 87.7 per cent cures (80 per cent with one treatment and 7.7 per cent with two treatments). The maximum dosage employed by Osborne and Putnam was 8 units, but MacKee[30] advised a maximum dosage of 5 units, with which dosage he had 78 per cent cures in verruca vulgaris and 51 per cent in verruca plantaris. MacKenna[31] gives one dose of 900 to 1,200 r at 100 kilovolts. In a large series of cases of plantar warts Oliver[32] obtained equally excellent results from roentgen and radium irradiation and believed that radiation is the method of choice for this particular type.

PERSONAL EXPERIENCES AND PREFERRED THERAPY

In an experience over a period of 24 years many of the above types of treatment have been employed, some with and many without success. Psychogenic therapy has failed almost universally, probably because the one who employs psychogenic therapy must believe wholeheartedly in its efficacy. In two successful "suggestion cures," which stand out above all others, psychogenic therapy was not intended:

Case 1.—A young man 21 years of age, a student, who had multiple, large verrucae vulgares of the palms was observed in the late hours of a busy day. He requested that no disabling treatment be given because he would have to take examinations the following week. Since there were 30 to 40 warts on each hand a soluble bismuth solution was injected into a solitary wart on each palm. He returned in two weeks presenting smooth palms, completely devoid of warts.

---

[9] Bonjour, J: The Psycho Vasomotor Theory of Verruca and Condyloma Acuminatum Experimental Proof, Ann de dermat et syph **1:** 209-219 (Feb) 1930

[10] Bloch, B Therapy of Warts by Suggestion, Klin Wchnschr **6:** 2271 (Nov 26) 1927

[11] Memmesheimer, A M, and Eisenlohr, E Treatment of Warts by Suggestion, Dermat Ztschr **62:** 63-68 (Sept) 1931

[12] Martin, H Salvarsan and Sp rocid in Treatment of Warts, Dermat. Wchnschr **111:** 941-946 (Nov. 2) 1904

[13] O Connor, W B, and Tweedall, D C Bismuth Therapy of Verrucae Oral Administration of Sodium Bismuth Triglycollamate (Bistrimate Tablets), J Missouri M A **45:** 25-26 (Jan) 1948

[14] Lurie, S A Verrucae Vulgares (Palmar and Plantar) Treatment by Intramuscular Injections of Bismuth Salicylate, Arch Dermat & Syph. **26:** 95-97 (July) 1932

[15] Shellow, H: Treatment of Verrucae by Local Injections of Bismuth, Illinois M J **66:** 332-336 (Oct) 1934

[16] Sutton, R L Sulpharsphenamine in the Treatment of Warts, J A M A **87:** 1127 (Oct 2) 1926

[17] Allington, H V: Sulpharsphenamine in Treatment of Warts, Arch Dermat & Syph **29:** 687-690 (May) 1934

[18] Cormia, F E Autolysate Therapy for Verruca Vulgaris, Arch Dermat & Syph **30:** 44-48 (July) 1934

[19] Biberstein, H Autolysate Therapy of Verruca Vulgaris, Dermat. Wchnschr **99:** 1105 (Aug 25) 1934

[20] Goldsmith, W N Recent Advances in Dermatology, Philadelphia, P Blakiston's Son & Co, 1936, p 387

[21] Paulosky, A J, and Leider, M Treatment of Condylomata Acuminata with Topical Applications of Inorganic Arsenicals, J Invest Dermat **13:** 73-79 (Aug) 1949

[22] (*a*) Culp, O S, and Kaplan, I W Condylomata Acuminata 200 Cases Treated with Podophyllin, Ann Surg **120:** 251-256 (Aug) 1944. (*b*) Sullivan, M Treatment of Condylomata Acuminata with Podophyllotoxin, South M J **41:** 336-337 (April) 1948, (*c*) Podophyllotoxin, Arch. Dermat & Syph **60:** 1-13 (July) 1949.

[23] Mackay, L M Use of Urea (Carbamide) in Treatment of Warts (Verruca Vulgaris), Arch Dermat & Syph **41:** 736-737 (April) 1940

[24] Simmons, N J Anal Warts and Their Treatment with Sclerosing Solutions, M Rec **151:** 116-118 (Feb 21) 1940

[25] Wigley, J E M General Principles of Treatment of Some Common Skin Diseases, Practitioner **136:** 555-568 (May) 1936

[26] Kile, R L, and Welsh, A L Liquid Oxygen in Dermatologic Practice, Arch Dermat & Syph **57:** 57-62 (Jan) 1948

[27] Osborne, E D, and Putnam, E D The Treatment of Warts, Radiology **16:** 340-345 (March) 1931

[28] Hazen, H H, and Eichenlaub, F Roentgen Ray Treatment of Verruca Plantaris, J A M A **74:** 1311-1312 (May 8) 1920

[29] Michael, J C Roentgen Ray Treatment of Verruca Plantaris, Arch. Dermat & Syph **13:** 658-660 (May) 1926

[30] MacKee, G M X Rays and Radium in the Treatment of Diseases of the Skin, ed 2, Philadelphia, Lea & Febiger, 1927, p. 618

[31] MacKenna, R M B Modern Trends in Dermatology, New York, Paul B Hoeber, Inc, 1948, p 376

[32] Oliver, E A. Verruca Plantaris, Arch Dermat & Syph **42:** 302-307 (Aug) 1940

CASE 2.—A surgeon with a verruca vulgaris on the distal phalanx of the right index finger refused radiation therapy and postponed the proposed treatment with actual cautery because of fear of pain and inability to operate for several days. An appointment was made for cautery excision, but prior to the date of the appointment he reported that without any therapy the wart had disappeared. This was either a case of spontaneous cure or one in which fear had produced a disappearance of the lesion.

Verruca Vulgaris.—In the treatment of verruca vulgaris local destruction is the method of choice. For small warts including the filiform and digitate types electrodesiccation with or without local anesthesia is the best treatment. For larger verrucae, either single or few in number, a 1 per cent solution of procaine hydrochloride is injected intradermally and the surface of the wart is seared with the actual cautery. The seared covering is then removed with a curet, revealing a red, soft, gelatinous base, which is destroyed down to firm tissue with the same cautery.

Warts in the beard are prone to recur and spread rapidly because they are frequently traumatized in the process of shaving. They are also removed by electrodesiccation or cautery, but after healing has taken place a 1 or 2 per cent mercurial soap is used to cleanse the face and aureomycin ointment is applied after shaving and before retiring. This has decreased recurrences and has produced cures in recalcitrant cases.

Warts around and beneath the nail are difficult to remove permanently. The method which has afforded the most success consists in trimming the overlying nail to provide complete exposure of the wart and in using a superficial application of monochloroacetic acid followed immediately by a 40 per cent salicylic acid plaster. This is kept in place for one week. When the plaster is removed the soft necrotic tissue is trimmed away with scissors and an antiseptic ointment is applied. At the time of application of the plaster, patients are warned that pain may become severe and that, if so, the plaster should be loosened or removed and compresses of boric acid solution be applied. A single treatment will often provide a cure, but two or three applications may be necessary before the wart yields.

In younger children with multiple verrucae vulgares mercurous iodide is prescribed along with a topical application of 20 per cent salicylic acid, 10 per cent resorcinol and 1 per cent mercury bichloride in 95 per cent alcohol. Twice daily this is applied into each wart with the point of a toothpick. The treatment is often augmented by weekly intramuscular injections of a 1 per cent aqueous solution of mercury bichloride. If such a regimen is unsuccessful, an attempt is made to remove the warts by electrodesiccation, but if multiple injections of procaine or many cauterizations are required, it is recommended that the patient be hospitalized and given a general anesthetic. All warts can then be removed painlessly.

Verruca Plana Juveniles.—Verrucae planae juveniles have been more resistant to treatment than any other type of wart. In this group, which occurs predominantly on the face of children, a successful outcome depends not only on the removal of the wart but on a good cosmetic result. Young persons would seem to be ideal subjects for psychogenic therapy, but in my experience it has almost always failed. The methods which have been of the most benefit are mercurous iodide or arsenic trioxide internally combined with small doses of roentgen radiation (44 to 66 r units) once per week for four weeks. On a few occasions, when some of the verrucae have been treated by means of electrolysis or electrodesiccation not only the treated warts but others on the face have spontaneously disappeared. This may be considered as a form of suggestion therapy. However, despite light desiccation the method may produce undesirable pitted scars. Paulosky and Leider [21] have reported success with the use of Fowler's solution locally. Aureomycin internally or locally may prove helpful in curing this type of wart.

Verruca Acuminata.—The therapy of verruca acuminata has been revolutionized by the discovery of the efficacy of podophyllum for this particular type of wart. In 1944 Culp and Kaplan [22a] reported great success by the application of a 25 per cent solution of podophyllum in mineral oil (liquid petrolatum), and they believed the reaction to be specific. Sullivan [22b] in 1948 found that the component of podophyllum responsible for this success was podophyllotoxin. Sullivan [22c] and other investigators discovered that alcohol was a more suitable vehicle for podophyllum than an oily base, as it can be applied into the crevices of the verruca without spreading to the surrounding areas and it dries more rapidly. These are important attributes, because podophyllum produces a pronounced cytotoxic effect on tissues and such reaction should be limited closely to the lesions requiring treatment. The drug may cause edema, redness, ulceration and pain not only of the wart but of the surrounding tissues. For this reason it should be thoroughly washed from the skin surface within seven or eight hours after its application. Facial lesions should be treated cautiously, because when it comes into contact with the eye podophyllum produces severe conjunctivitis, episcleritis and at times corneal ulceration. Paralleling the excellent results of Culp and Kaplan and of Sullivan all the verrucae acuminatae treated by us have disappeared completely, 80 per cent with one and 20 per cent with two applications. A 20 per cent solution of podophyllum in 95 per cent alcohol is preferred.

Plantar Warts.—Plantar warts are best treated with roentgen radiation, but certain requirements cited by Osborne and Putnam are necessary for effective radiation therapy. These are (1) careful paring of the upper horny surface with a scalpel or razor blade, (2) close approximation of lead foil to the periphery of the wart and (3) immobility of areas under treatment. These measures combined with the routine described by Pipkin, Lehmann and Ressmann [33] are used in our practice. The patient lies flat and comfortably on his abdomen, with leg extended and resting on a fixed, padded, raised, wooden support so that the sole is up and horizontal or nearly so. After the surface of the wart has been pared with a razor blade, the margins of the wart are outlined with ink and an opening is cut in a lead shield to exactly fit this outline. This shield is held in place with adhesive, and a treatment cone with leaded glass tip is applied firmly to the part. The transparent tip gives the operator the advantage of an unobstructed view of the target. One roentgen treatment and one only of 1,500 r (inherent tube filtration 0.5 mm. Al, 85 kv., 5 ma. at a distance of 8 inches [20 cm.]) is administered and the patient is requested to report for observation in six weeks. If the wart has not disappeared an attempt is made to remove the dried base with a dull curet. Should warty tissue still remain, a 40 per cent salicylic acid plaster is applied for four days and this procedure is repeated several times if necessary. If the above treatment is unsuccessful the wart may then be treated with liquid oxygen or solid carbon dioxide. Should all of these methods fail, then cautery or surgical excision is advocated.

---

[33] Pipkin, J. L.; Lehmann, C. F., and Ressmann, A.: Treatment of Plantar Warts by Single Dose Method of Roentgen Ray, South. M. J. **42:** 193-202 (March) 1949.

Although removal of the wart is the objective of treatment, nevertheless the severe after-effects of excessive or repeated radiation must not be overlooked. Too many patients have experienced and are suffering from radiation burns of the feet incurred by improper, careless therapy. Although the dosage of 1,500 r does not remove all plantar verrucae, it does give a satisfactory percentage of cures. Also, it is a safe dosage as to date there have been no severe radiation reactions produced. At the time of the treatment each patient is advised, "You are being given a dosage of roentgen rays which in my experience is capable of removing a majority of warts of this type. If it does not do so your wart is probably not radiosensitive, so never at any time in the future allow anyone to give additional radiation, either roentgen ray or radium, to this particular wart." If this or some similar advice is given fewer patients will be experiencing painful, crippling reactions of the feet and fewer operations for the removal of such inflamed tissue will be required.

The mosaic type of plantar wart is resistant to radiation, and for it the method of Montgomery and Montgomery[34] is recommended. After paring the surface of the wart monochloroacetic acid and a 40 per cent salicylic acid plaster are applied. At weekly intervals the macerated surface is trimmed away and the acid reapplied, provided the previous treatment has not produced severe pain. If intolerable pain occurs, wet compresses and a bland ointment are used until the reaction has subsided. When the wart becomes thinner a strong silver nitrate solution (1 grain to 1 minim) is applied. This routine is continued over a period of weeks or months and produces satisfactory results in a majority of the cases.

For multiple warts of the feet of plantar, mosaic and vulgaris types, particularly when accompanied with excessive perspiration and maceration of the interdigital webs, a satisfactory treatment has been to immerse the soles and sides of the feet in a basin containing a 5 per cent solution of formaldehyde. At first this is done daily, but as the feet become drier the immersions are made less often. During the day a bland powder containing 5 per cent magnesium carbonate and 10 per cent boric acid in talc is applied. This has decreased the perspiration and resultant maceration and has provided a good percentage of cures. It is important to warn the patient to be alert for a possible sensitivity to formaldehyde and to stop the treatment immediately if erythema and burning occur.

SUMMARY

1. The four types of verruca are described briefly.
2. Various types of treatment, reported to have been employed with success, are enumerated.
3. The forms of treatment considered to be the most valuable for each type of verruca are described.
4. Certain precautions are given to protect the patient from undesirable results.

3720 Washington Boulevard (8).

---

[34] Montgomery, R. M., and Montgomery, A. H.: Common Hyperkeratotic Lesions of the Foot, J. A. M. A. **124**: 756-761 (March 18) 1944.

PSYCHIATRY IN 1950

C. CHARLES BURLINGAME, M.D.†
Hartford, Conn.

Where does psychiatry stand today? Its position cannot be stated with any exactitude. As a matter of fact, no one can foretell its future further than to say that it will be permanently a part of medicine. Only in regard to the roads leading to the present can one be specific.

COMPARISON WITH OTHER BRANCHES OF MEDICINE

There is no branch of medicine today more in a state of flux, more talked about and more grossly misunderstood than psychiatry. This is true even among medical men, as witness the senior student body in one important medical teaching center seriously debating the question, "Do you, or do you not, believe in psychiatry?" as if it were a cult. Has anyone in modern times ever heard of medical practitioners debating whether or not they believed in surgery or pediatrics? And then one hears much talk about this, that and the other school of psychiatric thought, each accused of claiming to be right and the others wrong. All of this obscures the sound, sturdy development in psychiatry which has been quietly going on for years.

On other branches of medicine there are many groups of workers, each attacking the unknown, complementing the efforts of the others; each striving for a goal, saying to themselves and to each other, "These things we know; these things we do not know," but never saying, "We believe or we do not believe in some doctrine"; each group working with a certain amount of fact to which they add certain "good hunches" and hypotheses; each group having a wary but healthy respect for all other workers in the field; each group striving for new demonstrable scientific facts which can be integrated with the other demonstrated scientific facts in medicine; each group eventually exposing their findings in the full expectation that their work will be submitted to the grueling test administered by other workers, who, as their scientific duty, will attempt to disprove or to endorse the findings. Such is the true scientific basis of all medical progress in American medicine of today.

---

† Dr. Burlingame died on July 22, 1950. He was president and psychiatrist in chief of the Institute of Living.

Read in the General Scientific Meetings at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 27, 1950.

Because of the emotional storm clouds, the mental thunder and the personality lightning in the field of psychiatry, the members of the medical profession may have the impression that nothing sound and enduring is going on in psychiatry comparable to what is going on in the rest of medicine. Actually, psychiatry is quietly doing a superlative job which merits the confidence and respect of the rest of medicine. The workers in the vineyards of scientific psychiatry have multiplied tremendously in the 40 years and more since I entered the then-rather-desolate field. May I here interpolate that psychiatry is America's prize and oldest example of socialized medicine, which has been the state responsibility for over 100 years. This has been publicized as America's prime medical scandal and example of medical and social lag, in spite of the struggle of conscientious psychiatric leaders.

PSYCHIATRIC PROPAGANDA

Most workers in psychiatry are keenly aware of the unsoundness of the wave of psychiatric propaganda which has swept the country, with its unfortunate reactions. They have been quite aware of the accusations that some psychiatrists have been indiscreet and immodest in their claims. Again, broadcasting such statements as "see a psychiatrist early," "one in 11 persons needs to see a psychiatrist," "one in 20 will spend some time in a mental hospital" (then representing the state hospitals as snake pits) and "one in two hospital beds is psychiatric" has increased the anxiety of a large band of delicately balanced persons. When these remarks are followed with statements that "there are only five or six thousand psychiatrists in the country" and "the average person cannot possibly see one" anxiety is piled on anxiety, with no chance of its being liquidated. In the cancer drive, if the slogan "thump that lump" is popularized, the inability of the patient to see a physician will not make the benign lesion malignant. But one says "thump that lump of anxiety" and because of the shortage of psychiatrists the patient cannot get one to do so. Anxiety has its own malignant tendency to grow upon itself, even though to begin with it may have had no serious import. In short, propaganda, producing an anxiety that cannot be liquidated, creates the very psychiatric condition which it purports to eliminate. These things, however, although they may have been done under a psychiatric banner, should not be charged to psychiatry, the medical specialty.

Psychiatry has become much confused in the public mind with things nonmedical. One finds the papers carrying the story of the psychoanalysis of a motion picture star's pet pup, who was found to be suffering from an acute anxiety neurosis. Again, more recently, the two flyers who had been interned for 18 months in Communist China were interviewed on the radio. The master of ceremonies brought out time and again that, even without freudian training, the boys psychoanalyzed each other and thereby were prepared to analyze their captors and effect their escape. This goes on and on, until the serious-minded medical practitioner, surfeited with this sort of thing, prayerfully mutters, "O death, where is thy sting?" I sometimes think it might be well to substitute the term psychological medicine for the term psychiatry, in order to disidentify this branch of medical practice from the flotsam and jetsam on the psychiatric sea.

DIAGNOSTIC PROBLEMS

In 1950 psychiatry is forced to use diagnostic terms which are merely descriptive of a condition and, with a few exceptions, it has no disease entities corresponding to the diagnosis of pneumonia or appendicitis. Even with this handicap one can treat and prognosticate with improving exactitude. I feel encouraged that, as an etiological and somatic pathologic basis is established, disease entities will be lifted out of the manic-depressive basket, the dementia precox basket and the psychoneurotic basket.

It is known that psychoses and other psychiatric conditions can now be experimentally produced in animals and human volunteers, and the process reversed at will. This at long last parallels what is considered to be a scientific necessity in the study of somatic disease and is reminiscent of Koch's postulate for scientific deduction. These psychotic states can be induced by a variety of methods and agents, such as pituitary adrenocorticotropic (ACTH) and other hormones acting on the adrenocortex, drugs such as diisopropyl fluorophosphate and lysergic acid, and even planned, persistent emotional traumas. Most significant is the fact that these artificial psychoses can be broken up and the syndromes dissipated by some of the present day psychiatric therapies, such as electroshock. Furthermore, these synthetic psychoses can be influenced by psychotherapy, retraining methods and environmental controls. Although no thoughtful man of science will take this single group of facts and consider the battle won, he cannot fail to see the opportunity thus provided to march a whole army of hard-headed scientific workers onto the field.

Today the actual mechanism of mental disease still is not understood, but many investigations of promise are being conducted. Among these is the study of endocrine glands in the production and control of so-called mental disease, i. e., the observed significant alterations in adrenocortical function with the pituitary adrenocorticotropic hormone, sex steroids and other hormones. These are only examples of studies in progress which are closing in on the unknown mechanistic factors of mental disease.

ETIOLOGIC ASPECTS

There is little irrefutable knowledge of the causation of mental disease, but momentarily it is known that there are conditions which are called mental disease. It is known further that these may be produced by bacterial invasions, by dietary dystrophies, by exogenous and endogenous toxins, by physical trauma and fatigue, and also by psychological trauma and emotional strain. On the other hand, the knowledge that physical disease can be produced by emotional causes, which has recently been popularized as psychosomatic medicine, is as old as recorded medical history. Even the term psychosomatic medicine was used over a century ago; then the fashions changed, but now psychosomatic medicine is once more in style. Because of a duality of language, with separate words for mental and bodily processes, physicians came to think of the mind and body as separate, with diseases of the mind and of the body also separate.

There is a psychological side, sometimes minimal, sometimes great, to all so-called somatic ills, whether typhoid with its delirium, gastric ulcer, pneumonia, a malignant lesion or a fracture. And psychiatrists know, or should know, that there is no such thing as a mental disease without some somatic recording. After all, the body is the vehicle of the mind, and it is a scientific impossibility to conceive of the mind and mental disease floating around in a state detached from that vehicle. It would not be flattering to the psychiatrists' powers of deductive reasoning to assume that there is no somatic accompaniment to so-called mental disease just because, with the still imperfect diagnostic methods that are available, it is impossible to identify it. The laboratory observations of today are confirming the thesis that disease is neither mental nor physical but that all disease has different symptomatologic weightings between the psychological and the somatic.

To consider only two types of laboratory investigation, with cytochemistry and the ultraviolet spectromicroscope, psychiatrists are now able to see changes in protein metabolism of the nerve cell as a result of acoustic trauma and fatigue. Can it be that the time is approaching when it will be possible to see positive evidence of mental illness in the nerve cell under the ultraviolet microscope?

The effect of environment on the body, and thus by implication on mental disease, is also being demonstrated. In one experiment Norway rats bred for generations in the effete environment of Baltimore laboratories were found to have only a fraction of the adrenocortex of their wild, "alley-ashcan" distant cousins. When exposed to a new environment, the wild rats with their large adrenals distrusted each other, were overly aggressive, had disturbed behavior patterns and were unable to survive a change in diet. Briefly stated, in rat society they may have been guilty of "psychotic" behavior. In turn, the cultured rats, with their small adrenals, were overly submissive and timid, manifesting their own less vigorous signs of inadaptability. Are the scientific laboratories about to take out of the field of theory and speculation this whole question of the effect of environment on disease and health? Man is an adaptable animal, but just how adaptable?

Impressive indeed is the voluminous literature which each year records the observations and experimentation of laboratory workers. It records studies of changes in behavior, in emotional patterns and in social relationships through the use of surgical operations, chemicals, environment and training. So extensive is it that it would be prohibitive to do more than mention it.

PSYCHOTHERAPY

First among the therapies in 1950 let me mention psychotherapy. In the minds of much of the public and some of the profession, psychotherapy and psychoanalysis have come to mean one and the same thing. This would be analogous to saying that surgery and appendectomy are synonymous. One of the fractions of psychiatry is psychotherapy, and one of the types of psychotherapy is psychoanalysis; within the field of psychoanalysis there are several schools of thought. I believe that psychotherapy, no matter what its form, is essentially personal tutoring, by which I mean understanding guidance in personality development. Today psychotherapy is not an exact science by any means; nevertheless, some form of psychotherapy, even with its imperfections and lack of exactitude, is indispensable.

In the past there has been more heat than enlightenment generated by the vigorous differences of opinion regarding psychotherapy. However, there is beginning to be more enlightenment and less heat with the critical, nonemotional evaluation of results. There has been decided development along the line of simple, practical psychotherapy aiming at positive results in less time and at lower costs. This development, with due consideration for time and money involved and for practicality, has become a prime necessity. The claim that psychotherapy is solely a lucrative way of entertaining suburban ladies is not justified.

But psychotherapy, important as it is, is not the only psychiatric therapy. I am reminded of a little discussed statement of Sigmund Freud in 1920, when, speaking of the endocrine system, he stated, "The structure of psychoanalysis that we have erected is really only a superstructure which at some future time must be placed upon its organic foundation."

Psychotherapy enters into a partnership with rehabilitation. To draw a parallel, the modern surgeon would no longer consider it good surgical care to operate on an elbow and have it heal stiff, useless and in the way. His objective is toward the restoration of function. So it is in psychiatry. The procedure has become extremely practical. Decades ago it was learned that "loafer's delight," either in or out of a hospital, was the greatest foe to mental health and successful psychiatric therapy. Psychiatrists are thinking in terms of restoration, that is, the development of social function, not just keeping the patient busy weaving raffia baskets or rugs, except he be a Navajo Indian for whom that might be a vocation.

Psychiatrists have taken a leaf from the book of modern industry, and now they estimate a person's various capacities, develop and direct his abilities, and, in brief, equip him to go out and do what he must do as a productive member of society. Similar thinking and similar purposeful technics are being used to obviate the necessity for hospitalization. It is no longer considered good psychiatric practice, or good medical practice for that matter, to say "you need a vacation," which once used to be the universal recipe when the medical advisor did not know what else to say. Sardonically enough, however, "loafer's delight" or "do nothing for a while," with its etiological potentialities for mental and physical illness, is gradually receiving great impetus through pension schemes with enforced retirement. These erroneously assume that a man's goal is ultimate idleness. Too often, sudden decompression from carrying heavy responsibility is producing an emotional caisson disease which is gradually appearing in all doctors' offices in all specialties, even though not generally recognized. At least part of the cure is to have the patient reassume real responsibility.

PSYCHOSURGERY

Surgery of the mind is much in the limelight today. The debate about its usefulness should be just about over, with the award last year of the Nobel Prize to Egas Moniz, the originator of psychosurgery. The so-called "ashcan selectivity," which recommended psychosurgery in the long-standing cases in which there was nothing to lose, has moved decidedly in the direction of something more scientific. It is now known that many patients with chronic conditions do not benefit from surgical intervention and that some of those who have more recently become ill may well profit from operation. The temporary blocking out of certain cortical areas of the brain through local anesthesia is one of the many studies, all leading toward a more refined and positive selectivity. Those sophisticated in the procedures have developed a sense of balance extremely necessary in consideration of the sometimes spectacularly good results. Simultaneous with improved selectivity there have been developed several different operative technics from which to choose. All, however, have the objective of producing a new malleability that will permit the restoration of a patient into useful society. With some of the newer technics, it is not uncommon to operate on a patient in the morning and to have him up in the afternoon and in retraining classes the next day. To the question "Will psychosurgery change the personality of this sick person?" the answer is, "I hope so." To the question "Will the patient be made into a vegetable?" the answer is, "to my knowledge no sophisticate in the field has ever seen the operation produce such a metamorphosis." With some of the technics there is not even measurable intellectual impairment. Reeducation after psychosurgery is coming to be regarded as essential in order to break up bad habit patterns, the by-product of mental disease, and to establish socially acceptable habit patterns. To ignore the potentialities of psychosurgery is to be negligent. On the other hand, uncontrolled enthusiasm is frowned upon today.

Shock therapies are now firmly entrenched both in institutional and in office practice. The indications for insulin, pentylenetetrazole (metrazol®), electric shock therapy or their combinations are more specific. No longer does a psychiatrist feel helpless when a depressed or suicidal patient comes to him. He often uses one of the forms of shock therapy to protect the patient from self destruction in the emergency. Simultaneously he moves in with his indispensable psychotherapy or chemotherapy or other psychiatric procedures. The erroneous impression has originated that psychiatrists generally are using the shock therapies to the exclusion of all other forms of treatment. In reality, these are being used in conjunction with all other available forms of therapy. It still is not known how shock therapy works—possibly it is a physiological mechanism, operating through the autonomic or endocrine system. In the shock therapies, also, strides are being made in the matter of selectivity. With the aid of epinephrine and methacholine (mecholyl®) chloride, the time may be approaching when success or failure with shock therapies can be most accurately foretold.

It has long been the dream of psychiatrists to find some drug which would cure mental illness. Such a drug has not been found. The idea of finding any one drug does not appeal to reason. However, the chemotherapists of today are discovering that a number of drugs such as ether administered intravenously, mephenesin, lithium salts, malononitrile and histamine have a definite effect on various phases of mental disorders.

The over-all picture might be summed up by saying that psychiatriy in 1950 embraces psychological, surgical, educational, chemical and physical therapies, all based on a sound knowledge of man's body as well as his mind.

PREVENTIVE PSYCHIATRY

Preventive psychiatry today is more of an aspiration based on multiple theories than a body of fact that can be demonstrated. Be that as it may, I am certain that most preventive psychiatry is, or will come to be, practiced by men in the other branches of medicine. It is those in other branches of medicine who have the opportunity to prevent psychiatric conditions so far as they are preventable. These men know the disease, but must also take time to know the patient. Within reason, they must come to know what the patient's feelings are and why. The following are some simple examples in which there might have been an improvement in the technic.

1. A desiring wife was sent into seventh heaven by being told that at long last she was pregnant. Her medical adviser had known for years how much her whole life was built around having a child. Nevertheless, two months later, with cold, precise, impersonal and scientific exactitude he informed her that hysterectomy was indicated and that she might as well put out of her mind the thought of having a child. The patient did not wait to have her hysterectomy before she had a frank emotional blow-up with suicidal implications.

In this instance, somebody forgot that patients are people.

2. Without having any special grudge against the gynecologists, I recall an instance in which medical students participated in an examination. With the patient on the table, they all examined her and speculated on the diagnostic possibilities, including malignancy, ectopic pregnancy, fibroid and a few other things. Then the woman was given a pat on the back and told to come back in three months to be examined again and to be told whether or not she had a malignant lesion. That was another instance in which an emotional explosion occurred and the psychiatrist was called in during the waiting period.

Here again, someone forgot that patients are people.

3. I wonder how common it is to forget the often devastating psychological effect of advising a woman that she should have a panhysterectomy and that she is not going to have any further use for these organs anyway because she is past the menopause. I wonder whether members of the opposite sex would not also suffer some psychological trauma if something similar were suggested just because their procreative faculties were no longer indispensable.

Women as well as men are people.

4. In the whole broad field of cardiovascular disease there is also the necessity for thinking of patients as people. Everyone knows the futility of frightening a cardiac patient by telling him first that he will have to go slow the rest of his life and that he will have to be prepared to meet his Maker at any time, then telling him to relax and take it easy. Such a prescription, of course, cannot be filled, even by the most phlegmatic.

No disease ever existed without the patient. The disease and the patient are found together. Patients are people. An astonishing job has been done in the technical side of treatment of disease. But the physician must never forget that disease is a mixture of which the personality is always a part.

CONCLUSION

Psychiatry as a part of medicine has experienced a material growth. It is taking cognizance of its responsibilities and is striving to bring its help within the reach of the multitude.

I repeat that in 1950 there is a conscientious, hard-headed, nonvocal psychiatry which deserves the confidence and respect of the public and the profession. It can contribute toward the advancement of the medical sciences, but it also avidly seeks scientific and clinical assistance from all medicine, of which it is a part.

Clinical Notes, Suggestions and New Instruments

ADRENOCORTICOTROPIC HORMONE

Its Successful Use in Keratitis in a Diabetic with Moderate Heart Disease

STEVEN A. MAZAR, M.D.
and
ROBERT M. BOGDASARIAN, M.D.
Binghamton, N. Y.

There have been several reports of the successful use of pituitary adrenocorticotropic hormone (ACTH) in ophthalmologic conditions.[1] We wish to report on its successful use in a case of severe and long-standing superficial disseminated keratitis of the punctate and coalescing type. This had failed to respond to the conventional antibiotic and supportive therapy during a nine month period. After 10 days of therapy with pituitary adrenocorticotropic hormone there was a fairly dramatic improvement that has been sustained for six months. The case is further interesting because the patient is severely diabetic, needing usually 65 units of insulin daily, and because she has severe arteriosclerotic heart disease, compensated only by continued digitalization and by the use of mercurial diuretics once or twice weekly during the past year. Thorn and his associates,[2] in an excellent review of the recent clinical applications of pituitary adrenocorticotropic hormone and cortisone therapy, state, "It appears that the use of ACTH is contraindicated in diabetes mellitus, congestive heart failure, hypertensive cardiovascular disease, Cushing's syndrome, acne, hirsutism, osteoporosis and osteomalacia.

Because of the protracted course and severity of the symptoms of keratitis in this patient and because of her deteriorating morale, she was hospitalized at the Binghamton City Hospital on May 1, 1950. Therapy with pituitary adrenocorticotropic hormone was ventured in spite of the relative difficulties, or perhaps even contraindications, engendered by both the severe diabetic state and the edema-electrolyte disturbances of her heart disease. The potentialities were discussed with the patient and family; the patient was desperate for relief.

REPORT OF A CASE

B. K., a white Jewish woman aged 59, was admitted to the hospital with the chief complaints referable to the right eye: severe pain, scratchy sensations, blurred vision and the entire eye greatly reddened. These had lasted for nine months and had been progressive, with short temporary partial remissions. She had been under the care of several ophthalmologists in succession.

Systemic Review.—Systemic review disclosed the following pertinent history: The patient had not had previous eye troubles; her vision had been good, with the usual refraction changes. She occasionally had left frontal sinusitis. Her hearing was normal. She was edentulous, but wore satisfactory plates. There was no history of unusual repiratory diseases, except for bronchopneumonia, for which she had been hospitalized three times during the period 1944 to 1946. In the past three years she had been hospitalized three additional times for congestive heart failure and twice for severe angina simulating coronary thrombosis. Electrocardiograms never confirmed a true infarction. She had a moderate amount of dyspnea on exertion, orthopnea, a frequent cough and mild peripheral ankle edema. Her cardiac status was fairly well controlled by a low salt diet. She was digitalized most of the time during the past three years, taking 0.2 mg. of digitoxin daily, although she had never been known to have fibrillation; she needed glyceryl trinitrate occasionally for angina. She had needed more and more frequent mercurial injections until half a year ago when she was instructed in self administration of mercaptomerin (thiomerin®) sodium, which she took in 1.0 cc. doses once or twice weekly, her weight and symptoms being her chief guide. In the past her blood pressure tended to be rather high, 160 to 190 systolic and 90 to 100 diastolic.

The patient's appetite was usually good. There was some fatty food intolerance, for which a cholecystectomy was performed in 1924. Ten years ago she weighed 190 pounds (96.2 Kg.). She successfully dieted to around 120 pounds (54.4 Kg.) four years ago, and since then she gradually lost weight to the present range of around 100 pounds (45.4 Kg.). She was habitually constipated and for this she took cascara sagrada pills, one to two every night. She had several drug idiosyncrasies, notably to codeine, and perhaps to morphine and pantopon® (a mixture of opium alkaloids). Whether given orally or parenterally, these caused episodes of severe gastritis.

The diabetes history dated back to 1928. The patient had been variably controlled so far as diet is concerned; strict cooperation from her usually was poor, as she had her own ideas about diet. Not surprisingly, the insulin requirement was gradually increased over the years. From the available records, it was seen that in 1937 she was on a schedule of 25 units of regular insulin (15-0-10); in 1943, 40 units of regular insulin (20-0-20); in 1945, 35 units of protamine zinc insulin and 25 units of regular insulin, given in the morning, and in 1947, 40 units of protamine zinc insulin and 35 of regular insulin. In 1949 she was rather well controlled on 60 units of insulin, 40 protamine zinc insulin and 20 regular insulin. In recent months she was well controlled on 55 units, 35 protamine zinc insulin and 20 regular insulin. Throughout all these years she had few minor insulin reactions and apparently never had been in severe acidosis or coma.

The patient had chronic recurring urinary symptoms dating back to 1919 when, while six months pregnant, cystoscopy was first done for acute urinary retention, apparently due to a stricture. In 1922, a cystotomy was performed for a bladder "stone." In 1941 she had a thorough genitourinary work-up; a meatotomy was done for a urethral stricture, and a urethral caruncle was studied by biopsy and removed by fulguration. She continued to have urinary symptoms for which she had numerous urethral dilations, and several more cystoscopic and pyelographic examinations. However, no gross abnormalities were found. She continued to have a low grade urinary sepsis, manifest by a persistent pyuria with an occasional typical pyelitis attack on the left side. Antibiotics effected temporary ameliorations. She had a myomectomy in 1924 and a hysterectomy in 1926 at the age of 35, with minor and transient menopausal symptoms in their due course.

The patient was an individualist and had her own way in most things, sometimes, unfortunately, even in her medical management. She was despondent at times, expressing thoughts of suicide. Hospital diets were seldom to her liking, and she always insisted on her own selections. However, she was a good worker and managed household duties mostly by herself, a few times unwisely driving herself into cardiac decompensation necessitating hospitalization.

Summary of Past History.—The patient had undergone a cystotomy in 1922, a cholecystectomy in 1924, a myomectomy in 1924 and a hysterectomy in 1926. She had had diabetes mellitus since 1928. A tonsillectomy was performed in 1931. She had had pneumonia three times during the period 1944 to 1946. Numerous cystoscopic examinations had been made since 1919. She had had several acute pyelitis attacks since 1940 and arteriosclerotic heart disease with active symptoms since 1945.

Physical Examination.—The patient was a well developed but poorly nourished woman aged 58, in moderate distress with her right eye. Her left eye was normal. The entire globe and conjunctiva of the right eye were intensely injected; the cornea was opalescent and edematous, and the pupil was widely dilated with atropine. The intraocular tension was within normal limits by palpation. The ears, the nose and the throat were normal except

---

From the Memorial Building, [illegible] City Hospital

[1] Gordon, D. M., and McLean, [illegible] Adrenocorticotropic Hormone (ACTH) T[illegible] [illegible]id.tions, J. A. M. A. **142**:1271 (April 22) 1[illegible] [illegible] E. H.; Margulis, R. R.; Smith, R. W., and Whitney, E. L.: Effect of ACTH on Certain Inflammatory Diseases of Eye, J. A. M. A. **142**:1276 (April 22) 1950. Mann, W. A., and Markson, D. E.: Case of Recurrent Iritis and Episcleritis on Rheumatic Basis Treated with ACTH, Am. J. Ophth. **33**:459 (March) 1950.

[2] (*a*) Thorn, G. W., and others: Medical Progress: The Clinical Usefulness of ACTH and Cortisone, New England J. Med. **242**:783 (May 18) 1950; (*b*) ibid. **242**:824 (May 25) 1950; (*c*) ibid. **242**:865 (June 1) 1950.

for a left frontal sinusotomy scar and an edentulous mouth with suitable dentures. Examination of the neck revealed no increased venous distention and no palpable thyroid gland. The chest was emphysematous, and the breasts were normal. The lungs were clear. The heart was not clinically enlarged, there was normal sinus rhythm, the heart sounds were of good quality with accentuation of the aortic second sound, and there were no murmurs. The blood pressure was 155/75 bilaterally. On her abdomen there were three large operative scars. The liver edge was palpable just below the costal margin and tender. Neither spleen nor abdominal masses were palpable. The skin over the abdomen had a peculiar doughy nondependent edema, with a very slow filling of any pitted areas, and the breasts were similarly edematous.

There was edema (1 plus) in the ankles and also minimally in the sacrum, with the same pitting quality mentioned above. Neither cyanosis nor varicose veins were observed. The results of the neurological and rectal examinations were negative.

adrenal glands. We were not prepared to do any 17-ketosteroid urine studies for otherwise demonstrating the effectiveness of our pituitary adrenocorticotropic hormone therapy; hence we continued on clinical grounds alone.

Drug Schedule.—The pituitary adrenocorticotropic hormone was provided in 20 mg. and 10 mg. individual vials with contents dissolved always just prior to the intramuscular injection. Doses were given three times a day at six hour intervals, with night doses omitted. The patient received 60 mg. of the drug in three divided doses on the first day, after which (but coincidental with which, we are sure) anorexia developed; she vomited numerous times for the next few days. Because this disrupted the basal state, difficult at best with the diabetes and the maintenance of cardiac compensation, and because of the patient's anxiety, use of the drug was discontinued and resumed in a week after conditions stabilized again. This time the patient again received 60 mg. of pituitary adrenocorticotropic hormone daily for the first two days (20 mg. three times a day), then 30 mg. of pituitary adrenocorticotropic hormone for the following two days (10 mg. three times a day), then 20 mg. a day for an additional six days (10 mg. twice a day), making a total of 360 mg. On the day following the initial trial of 60 mg., the eye was improved, there was less ciliary injection and the pain was considerably less. The eye continued in its improvement for three days, even while the general clinical picture was deteriorating because of nausea and vomiting and the need for parenteral alimentation. Thereafter, the eye symptoms and findings increased again. When the course of pituitary adrenocorticotropic hormone was resumed, we again noted a significant improvement in the eye within 24 hours; the cornea became clearer, and the ciliary injection decreased. After five days of regular but diminishing amounts of the drug the eye was described as white, though there was minimal ciliary injection at the equators. The cornea was clear, and the patient was pain free.

Clinical and Laboratory Data

Day In Hospital	Blood Electrolytes, Mg./100 Cc.	Nonprotein Nitrogen, Mg./100 Cc.	Blood Sugar, Mg./100 Cc.	CO₂-Combining Power, Vol. %	Leukocyte Count					Blood Pressure	Weight, Lb.	Urine Sugar Profile	Therapy	
					Total	E., %	M., %	L., %	P. M. N., %				ACTH, Mg. Daily	Insulin, Units Daily
1	....	34	260	41	5,150	1	..	39	60	170/80	94	......	..	55
2	....	..	...	..	.....	..	..	..	..	......	..	......	..	55
3	....	..	...	..	.....	..	..	..	..	......	..	......	..	55
4	....	41	140	58	.....	..	..	..	..	......	93½	1111	..	55
5	350 —Na 22 —K 425 —Cl	..	...	..	5,550 6,250	00 00	13 3	36 34	51 63	155/75	..	13344	60	65
6	....	..	154	58	7,700	00	4	51	45	......	93½	12444	..	65
7	....	..	...	..	.....	..	..	..	..	165/70	..	113131	..	65
8	....	30	157	62	6,200	00	16	43	41	......	96	11111	..	65
9	....	..	...	..	.....	..	..	..	..	150/70	..	102122	..	55
10	....	..	...	..	.....	..	..	..	..	......	97	111000	..	55
11	....	..	...	..	.....	..	..	..	..	145/70	..	100001	..	55
12	....	..	...	..	7,000	00	7	46	47	......	100	100010	60	55
13	....	..	...	..	.....	..	..	..	..	120/65	..	443444	60	75
14	....	..	...	..	.....	..	..	..	..	......	102	310023	30	65
15	....	..	...	..	8,750	00	..	56	44	118/60	..	101	30	65
16	21 —K	..	118	60	.....	..	..	..	..	......	101	122100	20	65
17	....	..	...	..	.....	..	..	..	..	135/65	..	110010	20	65
18	....	..	...	..	.....	..	..	..	..	......	100	02012	20	65
19	....	..	...	..	.....	..	..	..	..	120/70	..	101110	20	65
20	....	..	...	..	.....	..	..	..	..	......	102	111111	20	65
21	....	..	...	..	.....	..	..	..	..	......	..	002111	20	65

Course in Hospital.—Preliminary laboratory studies were done for the necessary controls. These are incorporated in the table. A chest roentgenogram revealed normal lung fields and an aortic type heart with a prominent knob. An electrocardiogram revealed normal sinus rhythm, left axis deviation and digitalis effect, all similar to those of her previous graphs. A drop in the total circulating eosinophils is one of the most valuable guides to control of adequate therapy, but this failed when the pretreatment eosinophil count was reported as zero, as were all other eosinophil counts during therapy and one month afterwards. This is an unexplained phenomenon, peculiar to this patient we believe, because concurrent tests were being done regularly on other patients, with the expected average eosinophil counts. An initial white blood cell count was 5,150 with 60 per cent polymorphonuclear leukocytes, 39 per cent lymphocytes and 1 per cent eosinophils. This was from the usual Wright's stain blood smear. This was done at another laboratory. It is interesting that from her 13 previous available hospitalization records over the past 10 years there were never any eosinophils reported, and on two occasions two years apart during supposedly viral pneumonitis, there was leukopenia. The white blood cell count was 3,450, with 60 per cent polymorphonuclear leukocytes, 36 per cent lymphocytes, and 4 per cent mononuclear leukocytes; another count was 3,300, with 63 per cent polymorphonuclears and 37 per cent lymphocytes. We might speculate that the stress of hospitalization and anxiety over the new, expensive and potentially hazardous medicine were effective pretherapy stimuli to our patient's

CLINICAL CONSIDERATIONS

There was considerable euphoria, probably chiefly because of relief from the intractable symptoms of the previous nine months. The patient volunteered that she was ravenously hungry during the course of therapy. She usually experienced a dull headache about half an hour after each of the intramuscular injections. There was a gradual increase in weight from the 93½ pounds (42.43 Kg.) initially to the 102 pounds (43.6 Kg.) on discharge 18 days later, although there was no visible increase in the peculiar edema mentioned above, and perhaps even a decrease. The patient received her mercurial, mercaptomerin (thiomerin®)

sodium, 1.0 cc. every other day, during her hospital stay, whereas her previous requirement at home was twice a week. It was felt desirable to keep her rather dehydrated because of the counterbalancing water retention effect of the pituitary adrenocorticotropic hormone. Some risk is reported to attend this, but the patient was watched for signs of undue fatigue and muscular weakness. Potassium citrate, 15 grains (0.97 Gm.) four times daily, was given one day because of suggestive symptoms. Mecurial diuresis induces a large renal loss of potassium, and Thorn and his co-workers[2] mention it as a contraindication during therapy with pituitary adrenocorticotropic hormone, unless full doses of potassium chloride are being given simultaneously. They mention 1 or 2 Gm. of enteric-coated potassium chloride three times daily.

The initial carbon dioxide-combining power was 41 volumes per cent, and when the determination was repeated just prior to therapy it was 58 volumes per cent. The other two readings were 62 volumes per cent and 60 volumes per cent during pituitary adrenocorticotropic hormone therapy. These are not striking except that in previous hospitalizations, primarily for nondiabetic reasons, the patient's better carbon dioxide-combining powers were usually in the range of 50 to 55 volumes per cent when she was apparently fairly well controlled. The expected physiological effect of pituitary adrenocorticotropic hormone on electrolyte balance is to produce a hypokalemic, hypochloremic alkalosis, and our chemistry studies deviated in that way. The insulin doses given were 10 to 20 units higher once pituitary adrenocorticotropic hormone was started, but the patient was also eating better. It is difficult to say whether this represents a true increased insulin requirement or merely closer and better control. Thorn and his co-workers[2] mention that patients with preexisting diabetes will have their diabetes markedly aggravated by pituitary adrenocorticotropic hormone or cortisone therapy. This was not our experience. All urines were tested for sugar, and a useful means of recording it was designated as a urine sugar profile. For example, on the customary zero to 4 plus basis, if the patient had eight urine specimens in 24 hours, the profile might be read as 31002322. This number shows at a glance the extent of diabetes control as manifest by urine sugar over a 24-hour period. Elkinton and his associates[3] noted in nondiabetic persons a slight glycosuria in three of seven cases on the days when moderate doses of pituitary adrenocorticotropic hormone were given. This glycosuria was associated with slightly increased blood sugar values. The values all reverted to normal when therapy was stopped. Conn, Louis and Johnston[4] noted severe glycosuria after therapy with pituitary adrenocorticotropic hormone, and had convincing evidence that a true diabetic state would develop on long-continued use of the drug in adequate doses. However, Conn and his co-workers also have evidence that the renal threshold for glucose was lowered, making some of this glycosuria renal.

The daily blood pressures varied from 155/75 to 120/70, with the lower levels toward the end of the treatment rather than the other way around. Others have occasionally noted a blood pressure increase during therapy. It may well be that potential hypertension may be brought to light (Sprague[5]).

COMMENT

This represents an initial use of the pituitary adrenocorticotropic hormone by us, and it posed more than the average problems reported in other cases: mainly the severe diabetes, the mercurial-sustained compensation of an arteriosclerotic heart, and the absence of demonstrable eosinophils in the peripheral blood, with consequent loss of a most valuable yardstick by which adrenocortical response is measured. Following the clinical experience of others as far as dosage and methods were concerned and adapting it to our patient, we were able safely to effect a therapeutic response *sine qua non.*

It is well to have a definite plan in mind when initiating a course of pituitary adrenocorticotropic hormone or cortisone therapy, and from our experience in this case and from experiences reviewed in recent literature, the following are effective yet simple guides to therapy control: It is necessary to have conditions stable and basal as nearly as possible, or there will occur too many variables that confuse evaluations. It might be desirable in some cases to begin with saline blank injections for a day or so to test the patient's psychological responsiveness; then unbeknown to the patient and perhaps even the nursing and house staff, the therapy with pituitary adrenocorticotropic hormone should be started, using total circulating eosinophil counts periodically to demonstrate the desired eosinopenia. Lymphopenia, polymorphonuclear leukocytosis, and reticulocytosis are other physiological effects demonstrable by blood cell counts. In our case the total white blood cell count rose slightly but definitely; however, there was no lymphopenia. A daily weight record and an accurate fluid intake and output record will reflect any significant water and salt retention potentials of these drugs. A patient with borderline cardiorenal disease is liable to be pushed into an edema phase quite readily. These data will be a guide to any salt restriction therapy. Daily determinations of urine sugars are easy to do and potentially valuable. Though the reports of steroid diabetes are rare, nevertheless, potential diabetes might well be brought to light, as suggested by Thorn.[2a] An initial fasting blood sugar determination is desirable as a base line for any future repeat blood sugar determinations. Blood pressure determinations once or twice daily are similarly potentially valuable, although here again, though a true hypertension may not be really created, an existing hypertension may be aggravated. Electrolyte studies are desirable during the therapy when signs or symptoms are suggestive, for example, the muscle weakness of hypopotassemia or the asthenia of adrenocortical exhaustion from overstimulation with pituitary adrenocorticotropic hormone. It is undesirable to stop a course of therapy abruptly, and the present trend is to taper off gradually with diminishing doses to prevent a sudden collapse of adrenocortical function. It is necessary to bear in mind the adverse effects of the drugs on healing of wounds; Ragan and his co-workers[6] first noted this when biopsy wounds in patients with rheumatoid arthritis treated with cortisone were slow to heal.

Pituitary adrenocorticotropic hormone and cortisone have such a vast therapeutic spectrum that it is well to observe all the benefits or ill effects that the patient derives, subjectively and objectively, and not just those pertinent to the initial reasons for the therapy. Sprague and his associates[5] present a very comprehensive review of their observations on the physiological effects of cortisone and pituitary adrenocorticotropic hormone in man. Many of these physiological effects may bear evaluation in each patient, development or increase of acne, hirsutism, moon facies and delayed menses in women. Gout can be precipitated by therapy with pituitary adrenocorticotropic hormone, as well as treated by it. Myasthenia gravis can initially be seriously worsened by the therapy, before any subsequent benefit is noted.[7] Euphoria or mental depression may develop, especially after prolonged therapy.

SUMMARY

A case of severe keratitis of nine months' duration, unresponsive to the usual therapies, was promptly and successfully treated with pituitary adrenocorticotropic hormone (ACTH) in a total dosage of 360 mg., over a 10-day treatment period.

The treatment was complicated by the fact that the patient was severely diabetic, requiring 65 units of insulin daily, and had moderately severe cardiac disease, requiring biweekly mercurials for compensation.

The diabetes was not particularly aggravated, nor was the state of compensation too difficult to maintain.

The patient has not had a relapse after six months of a clinical cure of the keratitis.

---

[3] Elkinton, J. R., and others: Effects of Pituitary Adrenocorticotropic Hormone (ACTH) Therapy, J. A. M. A. **141**:1273 (Dec. 31) 1949.

[4] Conn, J. W.; Louis, L. H., and Johnston, M. W.: Metabolism of Uric Acid, Glutathione and Nitrogen, and Excretion of "11-Oxysteroids" and 17-Ketosteroids During Induction of Diabetes in Man with Pituitary Adrenocorticotropic Hormone, J. Lab & Clin. Med. **34**:255 (Feb.) 1949.

[5] Sprague, R. G., and others: Observations on the Physiologic Effects of Cortisone and ACTH in Man, Arch. Int. Med. **85**:199 (Feb.) 1950.

[6] Ragan, C.; Grokoest, A. W., and Boots, R. H.: Effects of Adrenocorticotropic Hormone (ACTH) on Rheumatoid Arthritis, Am. J. Med. **7**:741 (Dec.) 1949.

[7] Proceedings of the First Clinical ACTH Conference, Philadelphia, The Blakiston Company, 1950, pp. 127, 529 and 584.

THERAPEUTIC EFFECT OF PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) IN A CASE OF HENOCH-SCHONLEIN VASCULAR (ANAPHYLACTOID) PURPURA

MARIO STEFANINI, M.D.
CHARLES A. ROY, M.D.
LEDA ZANNOS, M.D.
and
WILLIAM DAMESHEK, M.D.
Boston

Increasing attention has recently been focused on a group of conditions characterized by a widespread alteration of the collagenous tissue. Active vasculitis of various regions appears to be, among other characteristics, a fairly constant common denominator in this group of diseases which includes such heterogeneous conditions as disseminated lupus erythematosus, acute glomerulonephritis, polyarteritis nodosa and serum sickness. Some of these conditions have a possible allergic causation, while in others the pathogenetic mechanism is obscure. Recently an additional characteristic has come to the fore, i. e., a variably favorable response to treatment with anterior pituitary adrenocorticotropic hormone (ACTH).[1]

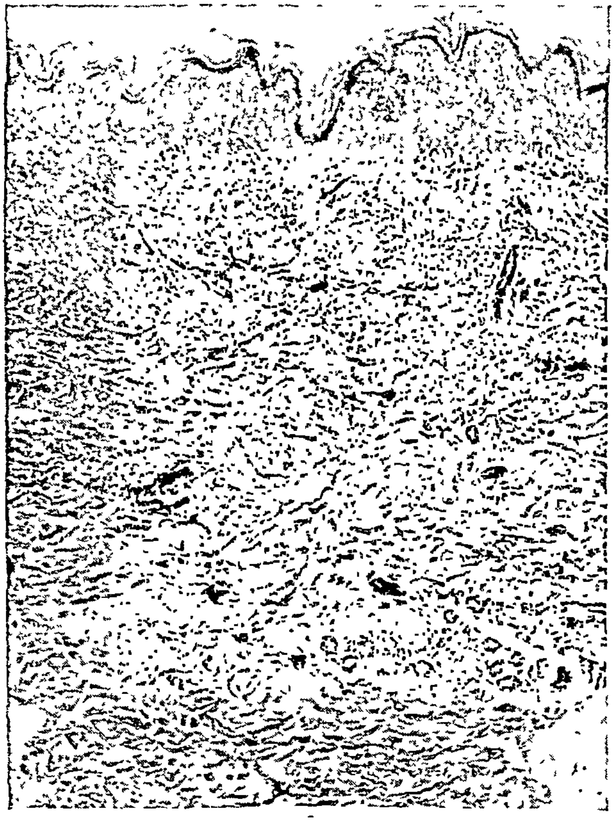


Fig. 1.—Microscopic appearance of a section of skin before pituitary adrenocorticotropic hormone therapy. Active inflammatory reaction centered around the small vessels and capillaries, which appear destroyed in some areas (× 110).

The nonthrombopenic Henoch-Schonlein type of vascular or anaphylactoid purpura is another condition which may be related to this group in view of its possible allergic basis and its severe generalized vasculitis. The classic capillary lesions are represented by active inflammatory changes centered around the smallest vessels with infiltration of inflammatory cells, and destruction and dilatation of capillaries. Edema of the epidermis and corium may also be present in the affected areas.

Because of these considerations we thought it of interest to observe the effects of treatment with pituitary adrenocorticotropic hormone in a case of severe vascular anaphylactoid purpura of the nonthrombopenic type, with associated glomerular involvement.

REPORT OF CASE

D. F., a boy aged 3 years, was admitted to the Boston Floating Hospital on Feb. 24, 1950. The family and past history were noncontributory. During the last week of January 1950 the patient had on his face a few red pin-point spots which disappeared in a few hours. At the same time, he experienced pain and difficulty in walking and his parents noticed moderate swelling and tenderness of both his ankles for a day or two. On Feb 6, 1950 many purpuric lesions were noticed on the extremities and buttocks. On his admission to another hospital the following observations were recorded: The temperature was 100 F. rectally; purpuric dark red spots, not disappearing with pressure, were seen over extremities, face, hypogastrium and genitalia; the tonsils were moderately enlarged and infected, there was acute otitis media of the right side, and the ankles were moderately swollen. A diagnosis of meningococcemia was considered, and sulfadiazine was given for five days, when it was discontinued because of gastric intolerance and the appearance of acetylsulfadiazine crystals in the urine. Laboratory examinations revealed a Streptococcus viridans in the throat culture; blood cultures were negative for Meningococcus, Typhus and Brucella. The bone marrow and peripheral blood appeared normal. Clotting, bleeding and prothrombin times were also within normal limits. Occult blood was found in the stools and vomitus.

On February 20, while the previous skin lesions were fading away, a new hemorrhagic rash appeared, large and confluent, involving all the extremities. Edema of the face, headache and cramplike abdominal pain at irregular intervals presented themselves at the same time. On February 23 about 1 teaspoon of red blood was passed with a bowel movement. The patient was then referred to the Boston Floating Hospital for further study. On examination the child complained of intermittent severe abdominal pain. He appeared rather pale. The skin over the extremities, buttocks and face was covered with purpuric spots varying in size and shape and mostly located on the extensor surfaces. Some of the lesions were elevated and some were excoriated as the result of scratching. Other positive observations included a grade 2 systolic murmur heard best in the third and fourth left intercostal space and transmitted over the entire precordium, the liver edge palpable 1 fingerbreadth below the costal margin and moderate swelling of the left ankle. The abdomen was tender without rigidity. Swab culture of the throat again revealed Strep. viridans and a nonhemolytic Streptococcus. Blood examination disclosed a moderate grade of anemia (red blood cells 3,120,000; hemoglobin 60 per cent) and normal leukocytes: there were 7,500 white blood cells, with a differential count of polymorphonuclear leukocytes 45 per cent, lymphocytes 37 per cent, monocytes 15 per cent, basophils 1 per cent and eosinophils 2 per cent; there was a normal platelet level and a normal bone marrow. The sedimentation rate (Westergren) was 11 mm. in one hour. Examination of the urine revealed faint traces of albumin, and the sediment showed 15 red blood cells and four white blood cells per high power field.

Tests for study of the hemostatic mechanism gave the following results: platelets, 380,000 per cubic millimeter; bleeding time, 3½ minutes; tourniquet test, negative; clotting time, 5 minutes; prothrombin activity, 100 per cent; labile factor activity, 100 per cent; clot retraction, normal; prothrombin activity of serum, 8 per cent (one hour after completion of coagulation), and serum/plasma prothrombin activity ratio, 8 0. No fibrinolysis was evident after 48 hours of incubation of the clot at 37 C. There was no demonstrable anticoagulant. In the tourniquet test 22 petechiae appeared in an area 1 inch in diameter after application of infradiastolic pressure for 10 minutes.

This work was supported in part by grants from the C. H. Hood Dairy Foundation and the American Cancer Society, Massachusetts Division.

This work was completed during the tenure of a Damon Runyon Clinical Research Fellowship (Dr. Stefanini) administered by the American Cancer Society.

From the Ziskind Laboratories (Hematology Section) of the Joseph H. Pratt and New England Center Hospitals, the Boston Floating Hospital and the Departments of Medicine and Pediatrics, Tufts College Medical School.

Dr. James Marvin Baty, professor of pediatrics, Tufts College Medical School, and physician in chief, Boston Floating Hospital, enabled us to study this case. Dr. H. Edward Mac Mahon, professor of pathology and bacteriology, Tufts College Medical School, interpreted the microscopic sections.

[1] Thorn, G. W., and others: Medical Progress: The Clinical Usefulness of ACTH and Cortisone, New England J. Med. **242**:783-793 (May) 1950.

Occult blood was detected in the stools. The nonprotein nitrogen level of the blood was 22 mg. per 100 cc. Roentgenograms of the long bones and chest showed no abnormalities. Lumbar puncture revealed clear fluid under normal pressure; the total protein was 9.2 mg., sugar 84 mg. and chlorides 708 mg., per 100 cc., and a culture was negative.

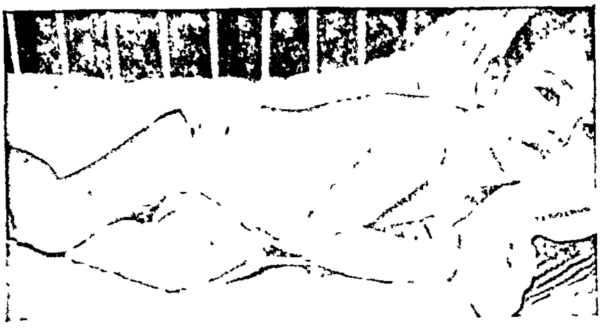


Fig. 2—Photograph of the patient at the beginning of pituitary adrenocorticotropic hormone therapy.

The patient was kept under observation and given penicillin, 300,000 Oxford units a day. The purpuric rash slowly cleared; by the sixteenth hospital day it had almost completely disappeared The stools were still positive for blood, and the child had intermittent severe abdominal pains Daily urinalysis continued to show moderate albuminuria, presence of red and white blood cells in the sediment and, at times, coarse granular casts.

On the fifteenth hospital day the petecchial rash reappeared with the same intensity as on admission The patient was then given aureomycin hydrochloride, 100 mg. every four hours. After six days of such treatment without improvement of the child, whose abdominal pains became more frequent and severe, pituitary adrenocorticotropic hormone therapy was started in a dosage of 5 mg. given three times a day subcutaneously. This preparation was supplied by Dr. E. B. Astwood and is a glacial acetic acid extract derived from pork pituitary gland.[2] At this time a skin biopsy was made. The specimen consisted of an elliptical piece of skin with a subcutaneous depth of 0.6 cm. The most striking change was the exceedingly active inflammatory reaction centered about the small vessels or capillaries, especially in the superficial layer of the corium. Capillaries were destroyed in some areas, dilated in others. This type of inflammatory reaction accompanied by hemorrhage is consistent with Henoch-Schönlein purpura but may also appear in other peripheral vascular diseases showing acute reactive inflammatory changes (fig. 1). The appearance of the skin of the patient at the beginning of hormone therapy is indicated in figure 2.

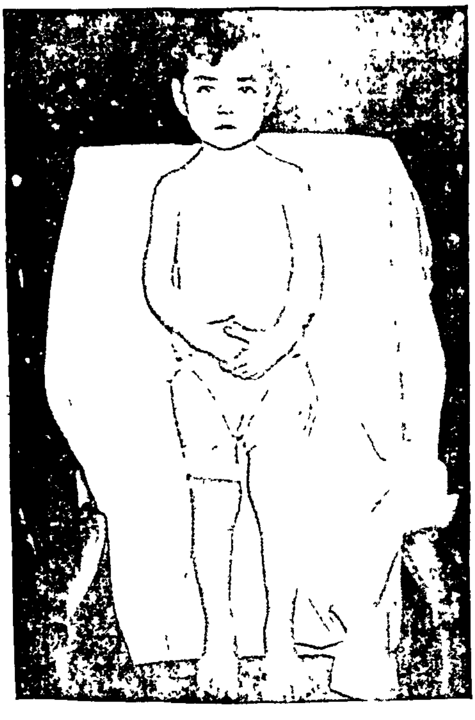


Fig 3—Photograph of the patient at the suspension of therapy. Note the residual pigmentation in areas that previously had hemorrhagic lesions. Only a few new petecchiae are present

Treatment with pituitary adrenocorticotropic hormone was continued for fourteen days, and a total of 210 mg was administered together with a low salt diet. A total gain in weight of 3 pounds (1.3 Kg.) was noticed, but the blood pressure remained within normal limits throughout the entire course of therapy. The cutaneous lesions improved rapidly and almost completely disappeared after six days of treatment (fig. 3). Abdominal pains subsided early during therapy. The urine also became more nearly normal, as the albuminuria diminished and casts were no longer observed in the sediment. The personality of the child was strikingly affected; although on admission he had appeared shy and withdrawn, he later became active and even aggressive. At the time of suspension of therapy a second skin biopsy taken in the only area of fresh hemorrhage showed massive hemorrhage into the corium and underlying tissue. The epidermis was intact. The active inflammatory disturbance previously noted had almost completely disappeared, and the reticular layer of the corium now showed the most minimal perivascular lymphocytic infiltration. The skin appendages were not affected (fig. 4).

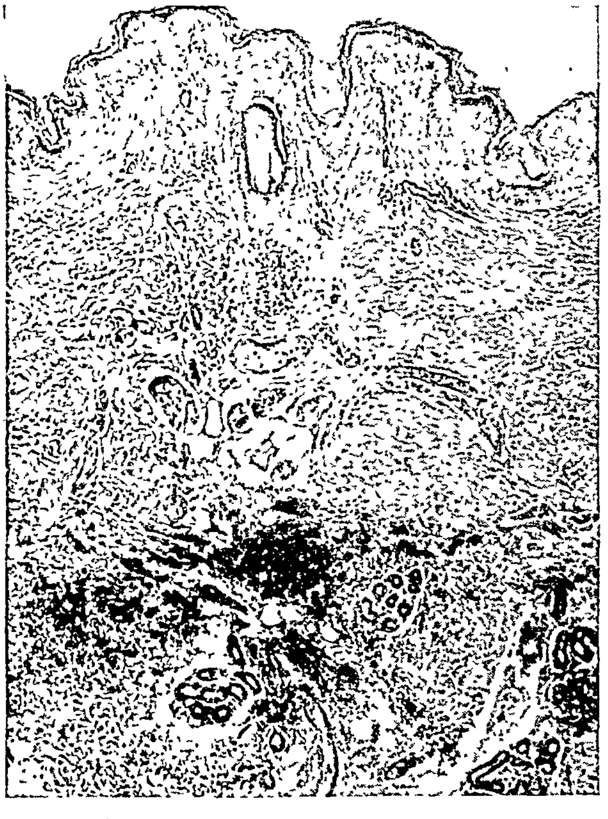


Fig 4—Microscopic appearance of a section of skin taken immediately after suspension of pituitary adrenocorticotropic hormone therapy. The section was taken in an area of fresh hemorrhage; hence, most of the infiltrating cells are erythrocytes and the perivascular lymphocytic infiltration is minimal (× 110).

Six days after pituitary adrenocorticotropic hormone therapy was discontinued new small purpuric lesions reappeared on the lower extremities and mild abdominal pains also recurred. Both symptoms receded promptly, and one month after discontinuing hormone therapy (April 19, 1950) the patient was discharged asymptomatic. The urine, however, again showed 0.5

---

[2] Astwood, E B; Cleroux, A. P.; Payne, R. W, and Raben, M. A.: Therapeutic Studies on Some Newer Corticotrophic (ACTH) preparations, Bull New England M. Center **12:** 2-10 (Feb) 1950.

per cent of albumin and a few granular casts in the sediment besides red cells and white cells, which had never disappeared altogether even during therapy.

After his return home the patient felt well, gained some weight and played actively. He was readmitted one month later (May 15, 1950). Sixteen hours before admission, he had felt feverish and complained of headache and weakness in his legs. The next morning he had passed port-wine-colored and smoky urine. At examination the temperature was 103.4 F. and the blood pressure 100/60. A few purpuric spots were noted on both cheeks. Laboratory examinations showed reddish urine that contained albumin (0.5 per cent); red blood cells (80 per field) and white blood cells (4 per field), and a few fine granular casts. The nonprotein nitrogen level was 48 mg. per 100 cc. Blood examination revealed a mild hypochromic anemia. Penicillin 50,000 units every four hours was given, and the temperature quickly fell to normal. Four days after admission a few purpuric spots were noted on the ankles, legs and elbows. They faded the following day. At no time did the patient complain of abdominal pain, nor was occult blood detected in the stools during this admission. Throat culture again revealed Streptococcus viridans.

Effect of Pituitary Adrenocorticotropic Hormone (ACTH) Therapy on the Urinary Findings in a Case of Anaphylactoid Purpura with Glomerular Involvement

Days After Start of Therapy *	R. B. C. Per Field	W. B. C. Per Field	Albumin Percentage	Casts † Per Field
0	16	12	0.5	1.2
5	16	10	0.2	3.0
11	40	15	0.2	0
15	15	14	0.05	0
30	18	5	0.5	0.5
45	15	9	0.5	0
75	60	4	0.5	0.4
120	20	8	0.3	0.6

* Therapy was suspended on the fifteenth day.
† Casts were mostly fine, of the granular and epithelial type.

Phenolsulfonphthalein elimination was normal; intravenous pyelography failed to show any abnormality. The serum protein level was 6.5 Gm. per 100 cc. (albumin 3.6 Gm. and globulin 2.6 Gm.).

Since then, the patient has remained in good condition. The urine appears normal in color and specific gravity, but a small amount of albumin is still present, as are red and white blood cells and a few casts in the sediment. At the time of writing (four months after the cessation of therapy) the patient enjoys perfect health, but the urinary findings are still unchanged. A nonprotein nitrogen determination gives a value of 31 mg. per 100 cc.

COMMENT

The diagnosis of Henoch-Schönlein nonthrombopenic purpura in this case seems to be fairly certain, in the light of the following rather characteristic clinical and laboratory observations: (*a*) the sudden occurrence and frequent recurrence of purpuric manifestations; (*b*) the association of the purpura with melena and hematuria, indicating the involvement by the vasculitic process of intestinal tract and kidney; (*c*) the articular symptoms early in the course of the condition, and (*d*) the laboratory results, showing increased capillary fragility but a normal mechanism of blood coagulation and normal bleeding time in a subject with purpura.

Several therapeutic agents have been suggested from time to time for the treatment of anaphylactoid purpura. Citrin (vitamin P, hesperidin), ascorbic acid, rutin and antihistamine drugs have been recommended and have given good, and sometimes spectacular, results in individual cases. The evaluation of any therapeutic procedure in this disease is difficult, however, because the disease presents frequent spontaneous remissions.

The same limitation applies to the evaluation of pituitary adrenocorticotropic hormone therapy in our case. As often happens with this disease, antibiotic therapy failed to modify the condition. On the other hand, treatment with the hormone agent undoubtedly influenced the process at least to some extent. The disappearance of abdominal symptoms was prompt and striking, and the skin lesions faded early during therapy. Skin biopsies taken in two areas of fresh hemorrhage at the beginning and at the end of therapy indicated a striking regression of the vasculitic changes. However, the hormone did not eradicate the disease. Small numbers of petechiae appeared even during therapy; purpuric spots and abdominal symptoms recurred temporarily after the suspension of treatment. The renal manifestations of the disease were only temporarily improved (see the accompanying table), and the establishment of a chronic nephritic process, a common occurrence in anaphylactoid purpura, was not prevented by pituitary adrenocorticotropic hormone therapy.

Particularly remarkable was the change in personality of the patient, who was shy and introverted before his disease and at the time of admission but became extroverted and aggressive shortly after the suspension of hormone therapy. After his discharge from the hospital the patient soon reverted to his withdrawn attitude.

SUMMARY

A case of severe anaphylactoid purpura of the nonthrombopenic Henoch-Schönlein-type with glomerular involvement in a child 3 years of age was treated with pituitary adrenocorticotropic hormone (ACTH), with the following results:

(*a*) The treatment was followed by striking regression of the vasculitic changes characteristic of the disease. The abdominal symptoms were promptly relieved and the cutaneous hemorrhagic manifestations diminished quickly.

(*b*) Mild abdominal symptoms and petechial manifestations reappeared after the suspension of the therapy but regressed spontaneously in a short time.

(*c*) The signs of renal involvement were only temporarily affected by hormone therapy, which did not prevent the establishment of a mild chronic glomerulonephritis.

(*d*) Remarkable changes in the personality of the patient were observed; these regressed shortly after the suspension of therapy.

Council on Foods and Nutrition

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

Clapp's Baby Food Division, American Home Foods, Inc., Rochester, N. Y.

CLAPP'S STRAINED SWEET POTATOES. Ingredients: Sweet potatoes, malt syrup, salt and water necessary for preparation.

Analysis (submitted by manufacturer).—Total solids 15.97%, moisture 84.03%, ash 0.99%, fat (ether extract) 0.04%, protein (N × 6.25) 0.93%, crude fiber 0.51%, carbohydrates other than crude fiber (by difference) 13.82%.

Vitamins and Minerals	Mg./100 Gm.
Carotene	2.03
Thiamine	0.024
Riboflavin	0.072
Ascorbic acid	2.55
Nicotinic acid	0.385
Calcium	14.80
Phosphorus	40.20
Iron	0.72
Copper	0.38

Calories.—0.57 per gram; 16.28 per ounce.

Use.—For use in the feeding of infants, convalescents and others requiring a soft diet.

The Gerber Products Company, Fremont, Mich.

GERBER'S READY TO SERVE RICE CEREAL. Ingredients: rice flour, invert sugar syrup, dicalcium phosphate, rice bran oil, salt, water extract of rice bran, sodium iron pyrophosphate, nicotinamide, thiamine hydrochloride, and riboflavin.

Analysis (submitted by manufacturer).—Total solids 95.2%, moisture 4.8%, ash (minerals) 3.9%, fat (acid hydrolysis) 5.5%, protein (N × 6.25) 5.1%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 80.4%.

Vitamins and Minerals	Mg./100 Gm.
Thiamine	6.88
Riboflavin	0.88
Nicotinic acid	6.9
Calcium	605
Phosphorus	680
Iron	70

Calories.—3.90 per gram; 111 per ounce.

Use.—For use in the feeding of infants and young children.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

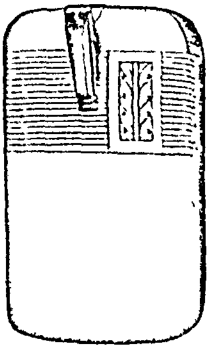
The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.

HOWARD A. CARTER, *Secretary.*

SILVERTONE HEARING AID, MODEL P-15, ACCEPTED

Manufacturer: W. E. Johnston Manufacturing Company, 708 West 40th Street, Minneapolis.

Distributor: Sears, Roebuck & Company, 925 South Homan Avenue, Chicago 7.

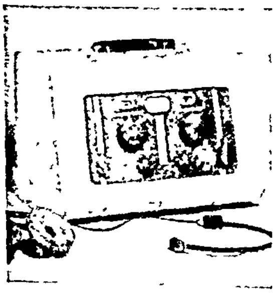


Silvertone Hearing Aid Model P-15

The Silvertone Hearing Aid, Model P-15, is an electric device recommended for the rehabilitation of the hard-of-hearing. Without the clothing clips, the case measures 85 by 58 by 21 mm. The weight of the instrument without batteries is 83 Gm. Receiver and cord weigh 11.5 Gm. and batteries 47.5 Gm., so that the total weight is 142 Gm. The Council's investigation showed that the instrument performed as represented by the manufacturer and that it met the requirements for acceptance. The Council on Physical Medicine and Rehabilitation voted to include the Silvertone Hearing Aid, Model P-15, in its list of accepted devices.

MICROTONE ADC AUDIOMETER, MODEL 53-C1, ACCEPTED

Manufacturer: The Microtone Company, Ford Parkway on the Mississippi, St. Paul 1.



Microtone ADC Portable Audiometer, Model 53-C1

The Microtone ADC Audiometer, Model 53-C1, is a portable instrument for testing a patient's hearing. It requires a source of 100 to 130 volt alternating current, being equipped to compensate for variations of line-voltage within this range. It is a pure tone audiometer and is equipped with both bone conduction and air conduction receivers. There is a microphone for communication with the patient during tests. Evidence obtained from a source acceptable to the Council indicated that this apparatus satisfies the Council's minimum requirements for the acceptance of audiometers. The Council on Physical Medicine and Rehabilitation voted to include the Microtone ADC Audiometer, Model 53-C1, in its list of accepted devices.

NATIONAL HEARING AID, ULTRATHIN MODEL 504, ACCEPTED

Manufacturer: National Hearing Aid Laboratories, 815 South Hill Street, Los Angeles 14.

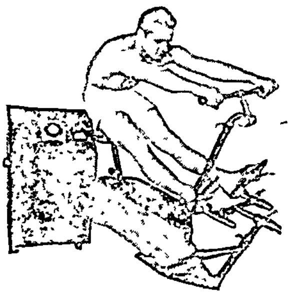
The National Hearing Aid, Ultrathin Model 504, is an electric device recommended for the rehabilitation of the hard-of-hearing. With the exclusion of the clothing clips at the side, the case measures 114 by 60 by 24 mm. (tapering to 20 mm.), and the transmitter unit, without batteries, receiver cord and receiver, weighs 110.5 Gm. With batteries, receiver cord and receiver, the hearing aid weighs 170.5 Gm. It requires the usual zinc-carbon A and B batteries.

The Council's test of the instrument showed that it met the requirements for acceptance and that the performance, construction and material were as represented by the firm. The Council on Physical Medicine and Rehabilitation voted to include the National Hearing Aid, Ultrathin Model 504, in its list of accepted devices.

BROCKMAN THERAPEUTIC EXERCISER ACCEPTED

Manufacturer: Brockman Manufacturing Company, 25 Rockhill Road, Bala-Cynwyd, Pa.

The Brockman Therapeutic Exerciser is designed for giving active and passive exercise to patients. It resembles a bicycle in having a seat, handle bars and pedals. The rate of pedaling is governed by an electronic control housed in a cabinet, and the power is furnished by a motor which requires a source of 60-cycle alternating current at 110 volts and consumes 330 watts of power. The leather-covered adjustable seat is stationary, providing security for the patient. There are graduation marks for the seat level adjustment, the handle adjustments and the pedal arms. The reach to the handles provides variations for adapting the exerciser to both children and adults. After the initial adjustments these readings can be recorded on the patient's chart and the apparatus set for each individual patient.



Brockman Therapeutic Exerciser.

When the apparatus is used for active exercise, increments of resistance may be added by means of an electronic control. When it is used for passive exercise, the speed may be varied from slow to brisk activity; the movements of the pedals can also be reversed The ankle can be placed either in front of or behind the axis of the pedal, so that the work can be distributed among the flexors and extensors of the ankle at will. Most patients find that they can get on and off the apparatus without aid.

Essential Measurements

	Height		Width		Length		Weight	
	Cm.	In.	Cm.	In.	Cm.	In.	Kg.	Lbs.
Therapeutic exerciser								
Unpacked	81	32	46	18	107	42	64	140
Crated *	92	36	61	24	122	48	120	265
Electronic control cabinet								
Unpacked	84	33	48	19	48	19	77	170
Crated *	92	36	61	24	102	40	110	260
Accessories and attachments								
Crated *	76	30	61	24	102	40	86	190

* For domestic shipment only.

As with any power-driven apparatus, the patients must be selected carefully. Without power the machine is not free-moving but requires more than minimal effort to start and maintain motion. Assistance to the pedal motion is possible by applying pressure on the handles, which are mechanically coupled to the pedals. The apparatus must be used with caution. This exerciser does not replace the foot-driven bicycles already in use. It is useful in rehabilitation of various parts of the body, including the arms, shoulders, back and lower extremities.

The Council on Physical Medicine and Rehabilitation voted to include the Brockman Therapeutic Exerciser in its list of accepted devices.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. - - - CHICAGO 10, ILL.

Edited by
AUSTIN SMITH, M.D.

Associate Editor
JOHNSON F. HAMMOND, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Subscription price - - Twelve dollars per annum in advance
Cable Address - - - - "Medic, Chicago"

SATURDAY, DECEMBER 16, 1950

THE CLEVELAND MEETING OF THE AMERICAN MEDICAL ASSOCIATION

The recent Clinical Session of the American Medical Association at Cleveland fulfilled once again the desires of those in attendance who were looking for up-to-date scientific information particularly intended for the general practitioner. It also indicated an increasing alertness on the part of the medical profession to its responsibilities in civic and other affairs that concern the health of the people of this nation.

Several thousand visitors, including physicians, medical students, nurses, exhibitors at the technical exhibits and guests, attended the meeting places for the Association's activities. The demonstrations and lectures sponsored in the Scientific Exhibit and lecture halls, the color telecast of surgical procedures and demonstrations, the medical motion pictures, the quality of the Technical Exhibit and the actions of the House of Delegates reflected clearly the breadth of activities and the interest of the participants at a Clinical Session of the American Medical Association.

SCIENTIFIC ACTIVITIES

The scientific sessions were planned to summarize current information on medical advances in various fields. Included in the general topics were discussions of cancer, heart and blood vessel diseases, diabetes, diseases of children, surgery, anesthesia and poliomyelitis. More than 80 prominent physicians participated in the lectures or demonstrations. Supplementing the lectures and demonstrations were 70 exhibits essentially devoted to the subjects mentioned. Even practical laboratory demonstrations were found as a prominent part of the scientific exhibits.

THE TECHNICAL EXHIBITS

More than 145 firms participated in the technical exhibits. Manufacturers of apparatus, dietary products and drugs and publishers were among those who were represented in this informative and interesting feature. During the past years there has been an obvious trend toward the development of more scientific presentations in the technical exhibits, and the commendations offered by passing physicians indicate the value of this trend.

HOUSE OF DELEGATES

The House of Delegates had a record attendance. Of 198 eligible delegates, 195 were seated on the opening day. They represent the constituent state and territorial associations, the Scientific Sections of the American Medical Association and the medical departments of the armed forces, the United States Public Health Service and the Veterans Administration. The large registration of delegates and their continued attendance revealed their serious interest in medical affairs. Perhaps most significant of the closeness of their interest is the fact that not one of the reports offered to the House by the Reference Committees was changed. As the Speaker of the House, Dr. F. F. Borzell of Philadelphia, pointed out, this surely indicated that the meetings of the Reference Committees had been well attended, the subjects thoroughly discussed and the delegates satisfied that the committees reported out the consensus of those in attendance.

The proceedings of the House of Delegates will be reported in THE JOURNAL beginning with the December 23 issue. Each action of the House will be given in sufficient detail to permit the reader to learn the reports of the reference committees and the disposition of these reports by the House. The complete proceedings will be made available as usual in a bound volume that will be sent to all officers of the Association and to all members of the House of Delegates. Others who may want a copy should communicate with Dr. George F. Lull, Secretary of the Association.

One of the earliest actions of the House was to choose the General Practitioner of the year, Dean Sherwood Luce of Massachusetts. Each county medical society is permitted to propose a candidate for this award. From these nominees one is selected from each state. The state list then is studied by the Board of Trustees, which presents three names to the House of Delegates, which by ballot selects the recipient.

The address of the President of the American Medical Association was published in the December 9 issue of THE JOURNAL. In the same issue appeared a statement from Mr. William L. Hutcheson, General President, United Brotherhood of Carpenters and Joiners of America, which was read before the joint meeting of the House of Delegates and the National Education Campaign. Because of illness Mr. Hutcheson could not appear, and his address was read by Peter E. Terzick, editor of *The Carpenter*. These addresses and others of great interest and significance will be made available for the members of the profession through other mediums. Also available will be the addresses presented at the third annual Medical Public Relations Conference, which was held immediately preceding the meetings of the American Medical Association and which was attended by more than 300 persons interested in public relations.

SECTION ON MILITARY MEDICINE

The House of Delegates, following a recommendation from the Council on Scientific Assembly, established a new Section on Military Medicine.

MEMBERSHIP

In an early issue of The Journal will be another series of questions and answers relating to membership and fellowship in the American Medical Association. These will appear in the Organization Section of The Journal. In the meantime, because of the many questions that have been raised concerning them, a summary of some actions considered by the House of Delegates is reported here. The House decided that fellowship and membership dues should be continued. Annual dues for members will include subscription to The Journal of the American Medical Association, an action taken by the House of Delegates at the 1950 Annual Session. An active member will be considered delinquent if his dues are not paid by December 31 of the year for which dues are prescribed and shall forfeit his active membership in the American Medical Association if he fails to pay the delinquent dues within 30 days after the notice of his delinquency has been mailed by the Secretary of the American Medical Association to his last known address. The Board of Trustees may excuse a member from paying dues when it is deemed advisable, provided that the member is excused from payment of his full dues by his component society and constituent association. However, all physicians who are engaged in the active practice of medicine, regardless of whether they are excused from payment of dues by a state association, must pay dues to the American Medical Association unless such payment would be a hardship. A physician who pays only partial dues to his county and state societies owing to hardship will be exempted from payment of A. M. A. dues but will not receive The Journal. This exemption will not be granted, however, except on written recommendation of the secretary of the county or state society in which the physician resides.

COMMITTEE ON CONSTITUTION AND BY-LAWS

An Interim Committee on Constitution and By-Laws reported several recommendations to the House of Delegates. At the conclusion of the report the House adopted action whereby this committee will continue until the 1951 annual session of the House, at which time a permanent committee on the Constitution and By-Laws will be activated. The new standing committee will consist of five member or service fellows elected by the House of Delegates on nomination by the Board of Trustees for terms of five years, so arranged that at each annual session the term of one member expires. The President, Secretary, Assistant Secretary, a member of the Board of Trustees and the Speaker and Vice Speaker of the House of Delegates will be ex officio members without the right to vote. The Committee will be fact finding and advisory and will report to the House of Delegates.

COMING A. M. A. MEETINGS

Among the items of general interest to the readers of The Journal is the supplementary report of the Council on Scientific Assembly which recorded the appointment by the Board of Trustees of Dr. James T. Billups of Houston, Texas, as Chairman of the Local Committee on Arrangements for the Houston Clinical Session to be held Dec. 4-7, 1951. The 1952 Clinical Session will be held in Denver during the first week in December and the 1953 Clinical Session in St. Louis.

BLOOD BANKS

In its consideration of the report of the Committee on Blood Banks, a Reference Committee of the House of Delegates recommended that the Board of Trustees urge that a state committee on blood banks be established in all constituent associations, that these committees be advised of the necessity of full cooperation with all other agencies engaged in blood procurement programs, that they promptly develop a blood program and that a copy of the report of the Committee on Blood Banks which appeared in the Handbook and the supplementary report presented to the House be sent to the secretary of each constituent association for the information of its blood bank committee.

A SUCCESSFUL MEETING

Those who attended the fourth Clinical Session of the American Medical Association left with a feeling that much was accomplished. This was made possible by the cooperation of all participants, and to them goes much credit for their hard work and interest in the development of this meeting. Particular credit, however, should be accorded the physicians in Cleveland who responded on such short notice when arrangements for this meeting in Denver had to be canceled because of local difficulties. The Local Committee on Arrangements worked unceasingly to make the meeting a success. The Chairman, Dr. Fay A. Le Fevre and the members of the administrative and other committees that made the meeting possible deserve the warm praise given them by the House of Delegates as it closed its meeting.

GENERAL PRACTITIONER'S AWARD

At the recent annual clinical session in Cleveland, the House of Delegates of the American Medical Association awarded its Gold Medal "for exceptional service by a general practitioner" to Dr. Dean Sherwood Luce of Canton, Mass. His career is the prototype of that of thousands of general practitioners throughout the United States, who devote their lives to the care of the sick. The selection of a particular person for this honor, however, is carefully guarded by rules set up by the Association. Dr. Luce was born in Holliston, Mass., nearly 75 years ago, the son of a Yankee sea captain, who, after losing his ship and almost his life, opened a general store on Martha's Vineyard. Dr. Luce attended Phillips Andover Academy, and Harvard Medical School, returning to the island on week ends to look after the business. He graduated from Harvard and, after interning at the Long Island Hospital in New York, began to practice in Canton in 1905. He was still busy attending to his practice when notified of this award. For the formal presentation of the award before his fellow physicians, Dr. Luce flew to Cleveland. He has long been interested in medical organizational activities. He is a councilor of the Massachusetts Medical Society, a member of its Committee on Public Relations and a past president of the Norfolk District Medical Society and has been editor in chief of the official publication of that organization. Dr. Luce served as a captain in the Medical Corps of the Army in World War I and as a member of the Selective Service Board of his community in World War II. He has been a trustee of the Canton Public Library, a member of the Canton Board of Health, and the school physician of that city for more than 20 years. He is also a member of the senior staff of the Norwood Hospital in Norwood, which is in Norfolk County, as is Canton, his home town.

Dean Sherwood Luce, M.D.

NEW SUPPORT FOR MEDICAL EDUCATION

In an epoch-making statement, the Board of Trustees announced at the Cleveland meeting of the American Medical Association the appropriation of a half million dollars for 1951 as the nucleus of an annual fund to be raised for the aid of medical schools throughout the nation. This decision of the Board of Trustees was unanimously and enthusiastically adopted by the House of Delegates. The statement presented by Dr. Louis H. Bauer, Chairman of the Board, reads:

> The Board of Trustees of the American Medical Association is pleased to announce to the House of Delegates that it has appropriated a half million dollars out of its National Education Campaign Fund, which was raised to defend medical freedom, for the aid and support of medical schools which are in need of additional financing. This fund will be given to the medical schools for their unrestricted use in their basic training of future physicians. This appropriation to aid the medical schools has been made possible by the widespread public cooperation which the profession has received from the American people in its campaign against compulsory health insurance. The fight against socialized medicine must go on until this issue has been clearly and finally resolved, but the pressure for regimentation of the medical profession has greatly lessened, owing to the magnificent public support which we have received. The Board of Trustees, therefore, feels that it is keeping faith with the American people, who have given medicine such a splendid vote of confidence, when it contributes this amount to the medical schools of the nation.
>
> There is growing public awareness that federal subsidy has come to be a burden, not a bounty, for it is bringing intolerable increases in taxation and is dangerously increasing federal controls over our institutions and the lives of our people. American medicine feels very strongly that federal aid for medical schools should not be sought unless all other means of financing have been exhausted. The Board of Trustees announced yesterday its belief that funds for this purpose could be obtained from private sources—and as practical evidence of our sincerity of purpose, this appropriation has been made as the nucleus of a fund which we hope will be greatly augmented by contributions from many other sources.
>
> The Board hopes that this action will become a stimulus to other professions, industries, businesses, labor groups and private donors to contribute to this very important cause of protecting and advancing the interests of medical education and the public health. The American Medical Association urges all its members to contribute individually to this cause, and we hope that doctors will take the lead in securing contributions from other sources.
>
> Furthermore, the American Medical Association invites attention to the fact that it has been spending about a quarter of a million dollars a year for many years past to advance medical education through its Council on Medical Education and Hos-

pitals and other departments. This appropriation, voted today, for an entirely new purpose, is in addition to nearly $285,000 already budgeted for this work during 1951.

The nation's medical schools are of the greatest importance to every American citizen, and the American Medical Association has had the advancement of their standards as one of its main objectives for over 100 years. The Board of Trustees feels that, if all other organizations and individuals will render support of this worthy cause in accordance with their financial ability, not only will the financial security of medical schools be assured but their freedom will be protected.

Within hours after the Board's decision had been announced more than $6,600 was spontaneously pledged by individuals and several thousands from other sources. Details concerning the plan whereby others may give to the fund now are being worked out and will be announced in THE JOURNAL and through the *Secretary's Letter*, which is transmitted to all officers of the American Medical Association and of the state and county medical societies. Additional information may be obtained now from Dr. George F. Lull, Secretary of the Association, by those wishing to make an immediate contribution.

MILK-BORNE VIRUCIDE

Experimental evidence suggesting a milk-borne immunity against certain virus diseases was recently reported by Ratner,[1] Culbertson,[2] Curley [3] and others. Using murine poliomyelitis virus, Knox [4] of the Department of Bacteriology, Columbia University, confirms their evidence.

At various stages of gestation, 100 pregnant mice were inoculated orally with the murine virus. Eighteen viable litters were born to these inoculated mothers. Half the litter were reared by their own mothers, while others were reared by foster mothers, some of which were normal. Six additional litters were obtained from mothers not infected till after parturition, six litters from mothers of known immunity and four litters from normal mothers. Between the time of weaning and 44 days of age the young were tested for immunity by intranasal instillation of a 1 : 100 dilution of the murine virus. Older littermates and adults were tested by intraperitoneal inoculation with five times this dose. It was found that the immunity of the young was directly related to the immunity of the foster mother, rather than to the immunity of the natural mother. A nursing period of 10 days was sufficient to transfer complete protection against the test dose of murine virus.

Milk obtained from immune mothers was therefore pooled and tested for its in vitro capacity to neutralize murine poliomyelitis. While normal mouse milk had no detectable neutralizing power, milk from immune mice reduced the virulence of murine virus when tested in dilutions as high as 1 : 100 and completely neutralized the virus in a dilution of 1 : 10. The exact nature of the virucidal factor in immune mouse milk has not been determined.

---

[1] Ratner, B.; Jackson, H. C., and Gruehl, H. L.: J. Immunol. **14:** 249, 1927.

[2] Culbertson, J. T.: J. Immunol. **33:** 51, 1940.

[3] Curley, F. J., and Gordon, J. E.: Am. J. Hyg. **48:** 81, 1948; J. Infect. Dis. **85:** 259, 1949. Anderson, J. A., and Bolin, V.: Am. J. Hyg. **50:** 200, 1949.

[4] Knox, A. W.: Proc. Soc. Exper. Biol. & Med. **74:** 792 (Aug.) 1950.

REACTIONS TO DEXTROSE

Seibert [1] in 1923 demonstrated that the substance responsible for febrile reactions following administration of solutions by vein is a product of bacteria that exist in river water and in tap water. It is important to realize that it is not the bacteria that produce the reaction but their toxic products. Elimination of pyrogens, substances responsible for febrile reactions following administration of solutions by vein, is accomplished by a number of procedures, such as proper distillation and sterilization of glassware and tubing. Rademaker [2] stressed that the care of glassware and tubing constitutes the most important factor in elimination of such reactions. Some authors consider rapidity of infusion as being responsible for some of the shock symptoms of the postinfusion reaction.

However, according to Randolph and his co-workers [3] there remains a residue of reactions after all measures of control of pyrogens have been scrupulously adhered to and the speed of administration regulated. The fact that only a few patients have reactions, and that most do not, suggests that an individual idiosyncrasy or allergy plays a part. These authors stress that sensitivity to corn occurs as often as sensitivity to wheat, if not more so. It is therefore not surprising that there should be occasional reactions to intravenous injection of dextrose that is prepared from simple hydrolysis of cornstarch. These authors demonstrated that crystalline sugars prepared from cornstarch may cause intense allergic reactions when ingested by persons highly sensitive to corn. The rapidity of the onset and the severity of such clinical reactions suggest that the sugar is allergenic in the form administered rather than in some form occurring after ingestion. The specificity of these reactions is demonstrated by the fact that alpha-*d*-glucose prepared from beet sucrose fails to produce symptoms when ingested by the patient who is sensitive to corn and who reacts specifically to corn sucrose; conversely, glucose prepared from beet sucrose will produce allergic reactions when ingested by patients known to be sensitive to beets.

The authors were able to reproduce in five patients who showed great sensitivity on ingestion of corn and corn products similar allergic phenomena by intravenous injection of a 5 per cent dextrose solution. It therefore appears probable that some of the stormy postoperative courses may be explained on the basis of allergy to dextrose.

---

[1] Seibert, F. B.: Fever Producing Substance Found in Some Distilled Waters, Am. J. Physiol. **67:** 90, 1923.

[2] Rademaker, L.: Reactions to Intravenous Administration of Solutions, J. A. M. A. **135:** 1140 (Dec. 27) 1947.

[3] Randolph, T. G.; Rollins, J. P., and Walter, C. K.: Allergic Reactions Following the Intravenous Injection of Corn Sugar (Dextrose), Arch. Surg. **61:** 554 (Sept.) 1950.

WASHINGTON NEWS

(From the Washington Office of the American Medical Association)

White House Conference on Children and Youth

In four crowded, hectic days in Washington, leaders in the nation's children and youth programs came to general agreement on what the young people need in health and other services Their findings are embodied in the report of the White House Conference on Children and Youth, attended by 6 000 official delegates and observers

"Children require, for their fullest development, full access to health, educational, recreational, social and religious services and programs directed toward the well-being of all they serve" This statement, taken from the preamble to recommendations, underlines all recommendations

The final plenary session came to these conclusions regarding the health of young people 1 More research is required on development and adjustment 2 All states should establish standards for the hospital care of mothers and children, "in order to assure the quality of care that modern science knows how to give" 3 All-inclusive minimum standards for day care center nursery schools and kindergardens should be established by state health or education departments 4 Prompt action should be taken at the national level to provide funds to supplement those of states and localities "to stimulate the early development of adequate local (public) health services throughout the country, 'particularly in view of mobilization' (A bill for federal aid to local public health units has passed the Senate but has been held up in a House committee 5 In developing new housing facilities, special attention should be given to health, recreational and social needs, and children of migrant workers should be given the same benefits as all other children One work section also came to the conclusion that "child health and welfare services are uneven in distribution and lacking in continuity and quality Yet adequate services of this kind are basic for the development of healthy personality" Another section was even more critical "Present health services have many inadequacies, particularly in relation to furthering healthy personality development in children and youth Many now rendering such services do not fully understand or give attention to the dignity and emotions of the individual, which are necessary to healthy personality development " The same section also commented, " success of mobilization is to an important degree dependent on provision of adequate health services to our mothers, children and youth" Another section cited the need for adequate treatment programs for handicapped children, and a further expansion of health services for children in general

In their final draft, recommendations omitted such controversial subjects as President Truman's national compulsory health insurance plan, aid to medical education and permanent and total disability insurance However, these and almost every other subject in the health field were heatedly debated in work groups A resolution endorsing compulsory health insurance came out of one work group, but did not reach the floor Another called for permanent and total disability insurance as essential to the security of children, but this, too, was deleted before the resolution was presented for action by the plenary session

Conference Notes

The 6,000 delegates to the conference made it one of the biggest meetings ever held in Washington, attendance was more than double that at the last White House Conference on Children and Youth Invitations were issued to about 400 federal officials Work groups were assigned topics that cut across professional lines, thereby insuring a variety of expression With a two year build up for the conference, demand for invitations was so great that a cutoff had to be imposed early in November No specific "health" or "medical" topic was assigned, but reference to health and medical problems appeared in many of the recommendations Delegates all invited as individuals with particular interest in the problems of children, were selected mainly from three sources—national organizations working with children and youth, state organizations and youth participation organizations This was the first time young people were asked to attend the Conference or participate in its planning One hundred and eighty physicians attended, over 100,000 persons helped in preparations for meeting, 500 youth delegates participating Subject matter of work groups ranged from infancy to young adulthood, from effects of the atomic bomb to cheating in school, from discrimination to television On Selective Service, Dr William C Menninger, Menninger Foundation, had this to say "Selective Service always discriminates, as illustrated by the fact that psychological tests designed to eliminate 13 per cent are actually rejecting 24 per cent of those available for service" Referring to the current deferment of the top 50 per cent of college students, he said, "The men in service would then bear the stigma of low scholastic ability, and academic standards vary, so that the 'lower' group in one college would be considered 'upper' in others" The 300 delegates attending a panel on effects of mass communications unanimously recommended that FCC allocate certain remaining television channels to educational institutions

Stockpiling of Medical Equipment

American mayors, testifying on Civil Defense legislation before the Senate Armed Services Committee, urged that the federal government act promptly to start building up regional stockpiles of medical equipment On this the mayors and civil defense officials are in agreement, and legislation appropriating $400,000,000 to buy medical and engineering supplies is before the committee However, on two other important points the mayors are completely at odds with the federal program

1 By unanimous vote, the American Municipal Association, made up of mayors, recommended that civil defense be made part of the Defense Department, but under civilian control This is unlikely without a reversal of direction, in view of the fact that an independent Federal Civil Defense Administration was set up by President Truman on December 1 and already is functioning The Senate committee has before it a bill (S 4219) that would establish the administration by statute and give it unprecedented power to meet disaster problems

2 In the same recommendation, the mayors urged that the federal civil defense organization establish and maintain direct ties with cities and communities, to assure them up to-the-minute information and guidance in their preparations In reply, James J Wadsworth, deputy administrator of FCDA, pointed out that the whole civil defense program is based on delegation of responsibility, from federal to state and from state to local He emphasized that federal civil defense authorities already have put out vast amounts of information in the form of pamphlets and booklets Particularly, he requested the mayors to give the following information to citizens who ask "What can I do" "The Red Cross has mobilized its facilities and chapters to carry out three major activities in which everyone can take part These are the first aid program, in which some 20,000,000 persons should be trained as rapidly as possible, the national blood program, in which the Red Cross will coordinate the efforts of all interested agencies in developing a realistic program of mass blood procurement, and the nurses aid and home nursing training, which will be carried out on a large scale"

The mayor s request for immediate action on medical stockpiles was presented to the committee by Mayor John B Hynes of Boston, who also urged that medical equipment be standardized Mayor Albert E Cobo of Detroit supported this demand, saying the cities had a right to know immediately what the federal government is going to do about stockpiling and standardizing medical as well as other supplies. Several other mayors voiced the same general opinions.

In earlier testimony before another Congressional committee, W. Stuart Symington, chairman of the National Security Resources Board, emphasized repeatedly that primary responsibility rested with states and communities. He said, "The greatest pressure of the operating load in civil defense rests squarely on the shoulders of our state and local governments. . . . The Civil Defense Office (at that time in N.S.R.B.) has pounded home constantly the theme that our states and cities must meet squarely the problems of heading up the grave and complex program which the international situation has imposed on every state and almost every city in our country. . . . (this) is the greatest challenge ever faced by our state and local governments. . . ."

Refilling of Prescriptions

Announcement of a proposed change in federal regulations on refilling of prescriptions has brought the whole subject again under discussion, this time with the probability of concrete developments. Federal Security Administrator Oscar Ewing has allowed 30 days for comments or protests to be filed, with the new regulations not to be put into effect until objections have been considered. The effect of the change, as now proposed, would be to allow pharmacists to refill prescriptions containing "over the counter drugs" without either written or oral prescription from the physicians. There would be no relaxation regarding so-called potent or prescription drugs, which still would have to carry the label "Caution: To be dispensed only by or on the prescription of a physician." FSA said, "We will continue to press legal action against those few pharmacists who endanger their customers' lives by selling these toxic drugs without prescription or on unauthorized refill." The complete text of the proposed regulation appears in the *Federal Register* for December 6.

Announcement that the change was contemplated came after the American Pharmaceutical Association had called for a public hearing on the whole issue of refilling prescriptions. Instead, FSA drew up the new regulations and allowed 30 days for comment or protests. As a consequence, objections from the Association or any other interested groups will be filed in writing rather than presented in open hearing. A spokesman for the American Pharmaceutical Association said that, if the regulations as finally drafted are not satisfactory, the association will go to court to enjoin FSA from putting them into effect.

Meanwhile, legislation to revise federal statutes on prescriptions appears to be definitely dead for this Congress. The Durham-Humphrey bill (H. R. 8904 and S. 3852) has two principal provisions: 1. Except for narcotics, "prescription legend" drugs could be filled on oral order from the physician, but he would be required to confirm the prescription in writing within 72 hours. 2. Clear definition would be made of drugs that would have to carry the prescription legend and "over-the-counter" drugs. Prescriptions for the latter could be refilled without reference to the physician. This bill has the support of the Food and Drug Administration, Federal Trade Commission and the retail druggists, but some of its provisions are opposed by the American Pharmaceutical Association.

Atomic Energy Commission Fellowships

The Atomic Energy Commission announces a total of 325 fellowships for the 1951-1952 academic year, divided as follows: 150 predoctoral in physical sciences; 100 in biologic sciences; 30 postdoctoral fellowships in physical sciences and 45 in biologic and medical sciences. The program will be administered by the Institute of Nuclear Studies, Inc., of Oak Ridge, with the National Research Council screening applicants. Final determination of fellows will be made by a national fellowship board to be appointed by the institute. Some type of security clearance is required for all fellowships. Predoctoral fellows receive $1,600 and postdoctoral $3,000, plus dependency allowances. AEC prefers to have postdoctoral fellowships served at an institution other than the one from which the fellow received his doctor's degree.

Chemicals in Foods

Recommendations for new legislation governing use of new chemicals in or on foods are almost certain to be made as a result of three months of intermittent hearings conducted by the House Select Committee on Chemicals in Foods. At this writing only one proposed bill is before the committee, that submitted by C. W. Crawford, Deputy Commissioner of foods and drugs, Food and Drug Administration, but committee members are expected to have some ideas of their own to submit to Congress. Mr. Crawford's bill would require producers of insecticides and other chemicals and preservatives for fresh and canned foods to submit their product to a specific series of tests before putting them on the market. Several witnesses have expressed the opinion that the residue from dusting and spraying compounds in some cases is dangerous to humans and that some other types of chemicals used in processing or packaging foods also are a hazard.

In the course of the hearings, Committee Counsel Vincent Kleinfeld complained that some representatives of the food industry have appeared reluctant to testify. The committee has not used its power of subpoena, but Mr. Kleinfeld said a few letters "requesting" attendance had been sent out when earlier invitations were ignored. Last week a group of agronomists, representing several universities and colleges, testified that chemical fertilizers if used properly are not harmful to man. Their argument was similar to that advanced earlier by a representative of producers of these agricultural chemicals, namely, that existing legislation is sufficient to protect the public and that, if there is any ground for concern, it is in the way the present laws are being enforced. Views of the food chemical industry (chemicals added to foods) were presented by Dr. John Foulgar of E. I. du Pont de Nemours & Co., supported by several other technical witnesses. He urged the committee to consider the disadvantages as well as the advantages of any new laws and stressed that many of these chemicals are important to the national diet. He advised the committee to make certain that any new test methods or standards required be reasonable and practical, as well as effective in protecting the health of the country. He said that, if the practical aspect of investigations were ignored, one result might be a slackening of efforts to develop new and improved ingredients. Dr. Foulgar suggested that the committee consider amendment of the Food, Drug and Cosmetic Act to require notice to Food and Drug Administration of intent to add to a food an ingredient not previously used in that food.

Notes

The full text of Executive Order 10186, establishing a Civil Defense Administration, appears in the *Federal Register* of December 5. The administration has less power under the executive order than under the proposed law. . . . "Sourcebook on Atomic Energy," the latest Atomic Energy Commission publication, is a 546 page book giving a review of basic nonsecret atomic energy information. . . . Bills to insure greatest possible distribution of N.S.R.B.'s pamphlet, "Survival Under Atomic Attack," are now before both House and Senate. N.S.R.B. has distributed over a quarter of a million copies. Copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 10 cents each. Incidentally, the latest word is that the health service manual for civil defense will be mailed to state Civil Defense directors before the first of the year. . . . The Senate subcommittee investigating health services has figures from commercial insurance companies, Blue Cross and Blue Shield. The committee is analyzing the statistics and has asked these groups for their opinions, which also will be analyzed for the report. . . . E. Roland Harriman has officially taken office as the new president of the American National Red Cross.

GOVERNMENT SERVICES

Army

Training Program Provided Physicians in the Emergency

At the beginning of the Korean conflict, only about 190 Army physicians were on duty in the entire Far East Command comprising Japan, Okinawa, Guam, the Philippines and Korea. As the troops in that area required a much larger number of physicians, the situation quickly became an emergency. Appeals were made to reserve officers, but of more than 3,000 who received letters, only 40 volunteered for immediate active duty. The Surgeon General's office considered next the young physicians who were serving in residency programs. The five large Army teaching hospitals already had small permanent and residency staffs, so that all residents could not be taken away from these hospitals. It was decided to reduce each service to the minimum necessary for the continuation of medical care in the hospital. This was done, and 132 residents, 101 young physicians who had just finished their internships and 89 civilian residents were flown to the Far East. The military stations throughout the United States were further depleted of medical officers, and they, too, were flown to the Far East, making in all, as of Nov. 7, 1950, about 750 medical officers in the Far East Command. The civilian residents were taken only after telegrams had been sent to the superintendents of the hospitals in which they were located requesting the release of these civilian residents as soon as possible. With few exceptions all agreed to assist. The value of the residency training program, which had been established after World War II, was indeed great in this emergency. The Army Medical Service was thus enabled to furnish medical officers promptly in all of the required specialties, and the medical care provided to the sick and wounded was creditable in every respect. In fact, according to Brig. Gen. Paul I. Robinson of the Surgeon General's office, in his address before the New England Post Graduate Assembly, Boston, Nov. 7, 1950, "There is every indication that an extraordinary record is in the making." General Robinson said that the wounded-in-action in the first three months of the Korean campaign equaled the number of American wounded in the first one and a half years of our participation in World War II. Nevertheless, the fatality rate for wounded soldiers reaching treatment centers, he said, will probably be less than half the World War II rate, which was 4.5 per cent.

Medical Draft Commission Deadline

In response to numerous inquiries relative to the final date on which draft eligible physicians may receive preinduction reserve commissions, Major Gen. Raymond W. Bliss, the Surgeon General, emphasized November 24 that the mechanics of processing applications preclude the guarantee of a commission to a registrant if he applies after receiving his induction notice. This commission deadline, General Bliss explained, is the result of administrative considerations. Section 5 of Public Law 779, 81st Congress, simply provides that "no person inducted under the provisions of this Act shall be entitled to the benefits of the provisions of Section 203 of Public Law 351, 81st Congress." However, for physicians and dentists to qualify as volunteers, and thus for the special professional pay authorized under Public Law 351, all processing required for a reserve commission must be accomplished and appointment made prior to induction.

"Because of the work load involved in processing an application for reserve commission, and the controls necessary for a decentralized Selective Service system, as well as a decentralized Army appointment system, we simply cannot guarantee that a registrant can receive his commission in time if he applies after he has received his induction notice," General Bliss said. "This, of course, does not preclude any registrant's applying for his commission after he has received his induction notice, and, if he receives a commission before actual induction, he is entitled to all the benefits provided for commissioned officers."

Personal

Col. Floyd L. Wergeland (MC) chief, Education and Training Division, Office of the Surgeon General, was honored by the College of Medical Evangelists, Loma Linda, Calif., on October 15, when he received the "Alumnus of the Year Award" at the annual alumni banquet in Los Angeles.

Navy

Admiral Boone Retires

Rear Admiral Joel T. Boone (MC), Inspector General, Medical Activities, retired on Dec. 1, 1950, with the rank of vice admiral after 36½ years of active duty in the Navy. In 1914 Admiral Boone entered the Navy as a lieutenant (junior grade). He served with the Marine Expeditionary Forces in Haiti and in 1916 participated in quelling the "Caco" (bandit) uprising, for which he received a Letter of Commendation from the Secretary of the Navy for "coolness under fire." In World War I, he served in France with the Second Army Division, participating in several major battles. For this service in France he was awarded the Medal of Honor by Congress for extraordinary heroism, conspicuous gallantry and intrepidity in conflict with the enemy.

During World War II Admiral Boone was Fleet Medical Officer. He was selected to be one of three officers to liberate Allied prisoners of war in Japan prior to the military occupation of that country and was the Naval Medical Corps representative at the surrender ceremonies of the Japanese aboard the *USS Missouri* on Sept. 2, 1945. He represented the Navy for three years as Director, Bureau of Naval Affairs, American Red Cross. In 1946 he was assigned as Medical Advisor to the Federal Coal Mines Administrator and as Director of the Medical Survey of the Coal Industry. In 1948-1949 he was Executive Secretary of the Secretary of Defense's Committee on Medical and Hospital Services of the Armed Forces. In 1949, Admiral Boone reported to the Secretary of Defense, having been appointed Chief of Joint Plans and Action Division, Office of Medical Services. During 1949 he served as president of the Association of Military Surgeons. Admiral Boone is the most decorated medical officer in the history of the Navy. He also had the honor of being physician to three Presidents, the late Presidents Warren G. Harding and Calvin Coolidge and later to President Herbert Hoover. Admiral and Mrs. Boone will reside in Washington for the immediate present at 4000 Cathedral Avenue, Northwest.

Personal

Rear Admiral Lamont Pugh, Deputy Surgeon General, has been elected president of the Washington Chapter of the University of Virginia Alumni Association.

Captains James R. McIntosh (MC, USNR), Bloomington, Ill., Clement C. Troensegaard (MC, USNR), Berkeley, Calif., and Lieut. (jg) Dwight M. Frost (MC, USNR) of Milwaukee, have been recalled to active duty at their own request.

Comdr. Harold A. Lyons (MC) has been appointed clinical assistant professor of medicine at the University of the State of New York College of Medicine.

Air Force

Dr. Boothby at Randolph Field

Dr. Walter M. Boothby, a professor emeritus of the Mayo Foundation, has joined the professional staff of the School of Aviation Medicine, Randolph Field, Texas, as research advisor. Dr. Boothby arrived at the school from Sweden, where for two years he had been advisor on research in aviation medicine and physiology to the Swedish Aviation Medicine Council at the University of Lund. While abroad he also appeared as guest lecturer at the universities of Aarhus, in Denmark, and Oxford and Cambridge, in England. At the Mayo Foundation Dr. Boothby was professor of experimental metabolism and, while there, organized the Mayo Aeromedical unit for research in aviation medicine. He is one of the original fellows of the Aero Medical Association, and is a fellow of the American College of Surgeons and of the American College of Physicians. During his long career Dr. Boothby has been instructor of anatomy at Harvard University Medical School, head of the Metabolism and Respiration Laboratories at Peter Bent Brigham Hospital, Boston, and chief of the Section on Metabolic Research at the Mayo Clinic. In World War I he was director of the First Corps Anti-Gas School and later instructor in the Army Medical School at Lange, France. He was at the front during the battles of St. Mihiel and the Argonne as chief of a surgical team. In 1938 he was a joint recipient of the Collier Trophy, in which he was cited by President Roosevelt for his contribution to aviation medicine in general and research on pilot fatigue in particular. He is a native of Boston and a graduate of Harvard University Medical School.

Gorgas Medal Presented to Major General Grow

At the annual dinner of the Association of Military Surgeons of the United States in New York, November 10, the Gorgas Medal was presented to Major Gen. Malcolm C. Grow (retired), former surgeon general of the U. S. Air Force. The medal and a $500 cash award was presented by Mr. H. W. Blades, executive vice president of Wyeth Incorporated, which pharmaceutical house established the medal in 1942 in honor of Surgeon General William Crawford Gorgas, whose work in preventive medicine made possible the construction of the Panama Canal. The recipient of the award is chosen annually by the Association of Military Surgeons.

According to the citation, General Grow "initiated, developed and made final arrangements for the employment of body armor to protect air force combat crews. He developed and put into use a device to protect gunners from wind blast; he developed electrically heated clothing, casualty bags for the wounded and wind and fire resistant face and neck protectors." General Grow was graduated from Jefferson Medical College in 1909. He retired on Nov. 30, 1949, after more than 31 years of military medical service.

Among the decorations and honors he holds are the Legion of Merit, Distinguished Service Medal, Bronze Star and French Legion of Honor in the rank of Chevalier, the Most Excellent Order of the British Empire, degree of Honorary Commander and the John Jeffrier Award. In 1949, General Grow was certified by the American Board of Preventive Medicine and Public Health.

Medical Supplies Dropped by Parachute

The 307th Airborne Medical Battalion, 82 Airborne Division, on October 26, pioneered the first heavy drop by parachute of major medical equipment. With no precedent to guide them, the 307th in conjunction with the Airborne Section of Army Field Forces Test Board no. 1, loaded a complete surgical operating unit on a heavy drop skid and dropped it from the rear of a C-82 aircraft. Another skid consisting of two complete hospital ward tents was also loaded and dropped. The first load landed without damaging a single item of equipment, which included such fragile items as thermometers, test tubes, a microscope and many delicate surgical instruments. The equipment, most of which had never been dropped by parachute before, included such items as a four section hospital tent, an autoclave (steam sterilizer) weighing 350 pounds, a complete field laboratory, two operating room lamps with batteries and a small generator, litters, blankets, surgical gowns and all the drugs needed for an extended stay in the field. The entire load weighed 4,500 pounds net. The second skid consisting of two hospital ward tents, with equipment necessary to care for all types of patients landed without mishap.

Veterans Administration

Benefits Authorized for World War II Veterans

The "Fact Sheet" released by the Veterans Administration Nov. 15, 1950, points out that the following medical and domiciliary benefits are authorized for World War II veterans:

Hospitalization.—World War II veterans, if discharged or separated under conditions other than dishonorable, are entitled to VA hospital treatment, under the following priority system: first, emergency cases; second, those suffering from injuries or diseases incurred or aggravated in line of duty during wartime service and third, those who state under oath that they are unable to pay hospital charges for treatment of non-service-connected disabilities or illnesses. These veterans, if not in the emergency category, must wait until a bed becomes available.

Emergency patients may be taken directly to the nearest VA hospital. If possible, the veteran, or someone acting for him or her, should communicate with VA by telephone or telegraph. In all other cases, the veteran, or his nearest relative, guardian or representative, should fill in the proper form for hospital care. These forms are available at any VA office.

If admission to a VA hospital or home has been approved, government transportation may be provided as follows:

1. Hospitals: To the hospital and, on completion of treatment in service-connected cases, to his or her home. This service may be provided for non-service-connected cases if they are unable to pay for the transportation.
2. Homes: To a VA domiciliary home.

Domiciliary care is designed to provide a "home" for veterans who have a chronic condition that incapacitates them from earning a living and who require minimal medical attention. Requirements for admission for domiciliary care are essentially the same as for hospital treatment. Transportation at government expense as a rule is provided only for the initial admission. The veteran, or his nearest relative, guardian or representative, should obtain preadmission approval from the nearest VA installation having facilities for domiciliary care.

Outpatient medical care is available for veterans in need of treatment for service-connected disabilities. Under this plan, eligible World War II veterans may receive treatment at VA hospitals or other field stations furnishing medical treatment or from approved private physicians. Each veteran's eligibility must be determined by VA before treatment of this type can be authorized. Necessary drugs may be obtained from "home town" druggists at government expense by veterans who are authorized to report to private physicians for treatment.

Personal

Dr. Franklin G. Ebaugh, professor of psychiatry, University of Colorado, conducted a two day seminar on the treatment of emotional disorders at the Veterans Administration Hospital, American Lake, Wash., October 2-3.

Dr. Knut Lindblom, Stockholm, Sweden, addressed the staff of the Crile Veterans Administration Hospital, Cleveland, October 2, 1950 on "Arthrography of the Knee" and "Myelography and Disk Puncture."

Dr. John J. Tyson has been appointed manager of the VA hospital in Omaha, which is scheduled to admit its first patients in November.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

Tenth Anniversary of Poliomyelitis Center.—A conference commemorating the tenth anniversary of Tuskegee Institute's treatment and training center for infantile paralysis was held November 27-28 in Tuskegee. Basil O'Connor, New York, president, National Foundation for Infantile Paralysis, was among the speakers who addressed 300 delegates and volunteer workers representing the foundation's chapters in various states. The celebration also served as a precampaign conference for the 1951 March of Dimes. Tuskegee's infantile paralysis center for Negro poliomyelitis patients and medical workers was established through a grant from the foundation. It is a three story brick building, a separate wing of the John A. Andrew Memorial Hospital, with which its work is coordinated.

CALIFORNIA

Short Poliomyelitis Courses.—Orthopaedic Hospital, Los Angeles, will give three short courses in poliomyelitis for physicians during 1951, aided by a grant from the National Foundation for Infantile Paralysis. Covering all phases of patient care, the courses will emphasize teamwork by professional services. New apparatus and methods for acute poliomyelitis treatment will be presented through cooperation with the Los Angeles General Hospital. Classes are scheduled for February 12-15, May 21-24 and October 22-25. Information may be obtained and enrolment made through C. L. Lowman, M.D., 2400 S. Flower Street, Los Angeles 7.

Voters Approve Release of Animals for Research.—The voters of Los Angeles on November 7 approved a proposition releasing an estimated 50,000 unwanted unclaimed dogs and cats from city pounds to qualified research institutions that are certified by the city health officer and inspected by the Department of Animal Regulation. A citizens committee conducted a campaign jointly with the Medical Research Society of Southern California, while the San Francisco County Medical Society contributed financially. Among the defense projects which have been hampered by a lack of animals for research is an Atomic Energy Commission program at the University of California School of Medicine, Los Angeles, to develop protective treatment against radiation effects of atomic bombs. A vital Navy aviation program to improve safety of high altitude jet flight was slowed down. Individual physicians also contributed to the successful campaign by urging their patients to vote for "Proposition C." Posters were placed in waiting rooms and drug stores. A tabloid newspaper captioned "Citizens Committee News for Yes on Proposition C" was widely distributed.

COLORADO

University Appointment.—Dr. John A. Frank has been appointed assistant professor of psychiatry in the University of Colorado department of medicine and a senior staff physician at the Colorado Psychopathic Hospital, Denver. One of his duties is to take charge of the 1927 Colorado law cases, that is, the examination of criminals who are making pleas of insanity. Dr. Frank comes to the university from Bellevue Hospital in New York, where he did similar work. He has been on the faculty of New York University since 1944.

CONNECTICUT

Personal.—Dr. Samuel C. Harvey, New Haven, has been appointed state director for the selection of physicians under the recently enacted Doctor-Draft Act. Serving with Dr. Harvey will be Dr. Stanley H. Osborn, state commissioner of health, and William R. Dunleavy, New Haven, dental advisor.

Dr. Murdock Honored.—Dr. Thomas P. Murdock, Meriden, member of the American Medical Association's Board of Trustees, was guest of honor at a testimonial dinner in New Haven November 29, in recognition of his many years of service to the medical profession. The event was held at the New Haven Country Club. Among the speakers were Dr. Louis H. Bauer, New York, Chairman of the American Medical Association's Board of Trustees; Dr. Edward R. Cunniffe, chairman, Judicial Council of the Association; Dr. Hart E. Van Riper, New York; Dr. Morris Fishbein, Chicago, and Dr. Creighton Barker, executive secretary, Connecticut State Medical Society. Dr. Thomas J. Danaher, Torrington, president of the state medical society, presided. Dr. Murdock is a past president of the state medical society and the New Haven County Medical Association. For several years he has been a member of the House of Delegates of the American Medical Association. In 1949 he was chairman of the A. M. A. Committee to Survey Nursing Services in the United States. He was a member of the Connecticut Medical Examining Board for 15 years.

ILLINOIS

Narcotic Violation.—Dr. John W. Long of Robinson recently pleaded nolo contendere at Danville to an indictment charging violation of the federal narcotic law and on September 11 was fined $500.

Chicago

Personal.—Col. Arnold D. Tuttle (MC, USA, retired), now medical director for United Air Lines, gave the graduation address for the aviation medical examiner class, School of Aviation Medicine, Randolph Field, Texas, December 2. Colonel Tuttle is a former commandant of the School of Aviation Medicine.

Society News.—The Chicago Society of Physical Medicine and Rehabilitation will meet January 24 at 8:00 p. m. in the Medical Center, Y. M. C. A., 1804 West Congress Street. Arthur H. Steinhaus, Ph.D., professor of physiology, George Williams College, Chicago, will speak on "Physiology of Exercise." Professional personnel and their guests are welcome.

Committee to Select New Department Head.—Dr. Warren H. Cole has been appointed chairman of a committee that will select a new head for the department of medicine at the University of Illinois College of Medicine and the university's Research and Educational Hospitals. Dr. Robert W. Keeton, present head of the department of medicine, will reach the retirement age of 68 during the present academic year. On the committee with Dr. Cole are Drs. Granville A. Bennett, George M. Hass, Francis J. Gerty, Henry G. Poncher, Francis E. Senear and George E. Wakerlin.

Chicago Medical School Appointments.—Dr. Herman Josephy, attending neuropathologist at the Chicago State Hospital, has been appointed associate professor of neurology at the Chicago Medical School. From 1914 until 1933 when he left his native Germany, Dr. Josephy was a physician at the Psychiatric Hospital in Hamburg, and from 1924 to 1933 he was an associate professor of neurology at the University of Hamburg. Harold Elishewitz, Ph.D., has been appointed assistant professor of parasitology in the department of microbiology and public health. He entered the research and development branch of the Quartermaster General, Research and Development, U. S. War Department, in Washington, D. C., in 1943 and served also as recording secretary of the National Research Council Committee on Insecticides and Insect Repellents. The following two years he was associated with the Pan American Sanitary Bureau in South America and Southern Mexico.

New Program for Nurses at Northwestern.—Northwestern University Medical School has announced a new program for nurses that offers a Bachelor of Science degree in nursing in addition to the diploma in nursing. Candidates for the degree must have 90 quarter hours in an accredited university and must complete three calendar years in one of the schools of nursing affiliated with Northwestern University. These are Wesley Memorial Hospital and Passavant Memorial Hospital, both located on the Chicago Campus, and Evanston Hospital. Under the new program residence in Northwestern's College of Liberal Arts is not required. Credit from any accredited university will be accepted, but work in English, chemistry and biology is required. The new program, formulated by the Council on Nursing Education, was requested by the Northwestern Senate last June. Dr. John H. Annegers Jr., assistant professor of physiology, is the coordinator and director of the program in nursing, under Dr. Van Dellen, director of the newly created Division of Auxiliary Medical Services.

INDIANA

Physicians in General Assembly.—When the 87th Indiana General Assembly opens, on January 4, three physicians will be among its members: Dr. William M. Cockrum of Evansville, a delegate from Indiana to the American Medical Association House of Delegates, and Dr. Otis A. Koop of Anderson, who were elected to the House of Representatives last month, and Dr. Walter F. Kelly of Indianapolis, a holdover senator.

IOWA

Fellowships in Basic Sciences.—Two fellowships supported by the Medical Service Funds of the State University of Iowa College of Medicine are being offered to graduates in medicine who contemplate academic careers. These are offered on the basis of half-time teaching and half-time research in any of the following departments: anatomy, bacteriology, biochemistry, pathology, pharmacology, physiology and hygiene and public health. Candidates may or may not have had clinical internships. Clinical residency trainees are acceptable if they wish to complement or interrupt a clinical residency program. Graduates of any approved medical school may apply. The salary will be $3,600 on a 12 month basis for those who are unmarried and $4,000 per year for those who are married. Application blanks may be obtained from the Office of the Dean, College of Medicine, State University of Iowa, Iowa City. Applications should be submitted to the same address on or before April 1, 1951.

KENTUCKY

Mobile Water Laboratory.—The State Health Department has a new $12,000 laboratory trailer fully equipped to take pollution tests along the Ohio River as part of a six state survey.

Cancer Society.—At the annual achievement dinner of the Kentucky Division of the American Cancer Society in Louisville November 14, Kenneth C. D. Hickman, Ph.D., of the Eastman Kodak Company, Rochester, N. Y., spoke on "Time and the Cancer Problem." The dinner honoring the 120 volunteer county organizations was attended by 250 workers throughout the state.

Personals.—At a meeting of the State Medical Research Commission November 16, Dr. Carl C. Howard, Glasgow, was reelected chairman, a position which he has held since the group was organized in 1948.——Dr. Harold M. Kelso, Louisville, has resigned as director of county health work of the State Department of Health, effective January 1. He will assume his former position of assistant city health officer, Knoxville, Tenn.

MASSACHUSETTS

Putnam Fellowship Open.—The Helen Putnam Fellowship for advanced research in genetics or mental health, open to women scholars who have a doctorate, is being offered by Radcliffe College for the academic year 1951-1952. The award carries a stipend of $2,800 a year with the possibility of renewal. Applicants are asked to submit a plan of research. Preference will be given those whose research is already in progress. Applications should be returned to the Secretary of the Graduate School, Radcliffe College, Cambridge, not later than April 1, 1951.

MICHIGAN

Pilot Blood-Typing Program.—Nurses, medical technologists and clerks began the first week of this month a project to type blood of students and faculty members at Wayne University, Detroit. The program, tentatively scheduled to run until the Christmas holidays, is part of a larger project being conducted by the state Office of Civilian Defense. The program is a "pilot study to see what problems are involved in a cooperative study of this kind." A uniform method of typing has been adopted by the whole state. Michigan cities taking part in the project are Jackson, Birmingham and Ypsilanti.

MISSOURI

General Practitioners Study Club.—The following programs for 1951 featuring local physicians have been arranged by the General Practitioners Study Club of Greater St. Louis:

Jan. 17, Norman Tobias, Office Treatment of Common Skin Diseases.
Feb. 21, Robert W. Bartlett, Differential Diagnosis and Treatment of Pain in the Right Upper Abdominal Quadrant.
March 21, W. G. Klingberg, Genitourinary Conditions in Childhood.
April 18, Robert E. Bruner, Early Diagnosis and Treatment in Cerebral Palsy.

NEVADA

Society Election.—The Nevada State Medical Association at its convention in October installed Dr. Walter F. Quinn of Ruth as president. Dr. J. Vernon Cantlon, Reno, was chosen president-elect; Dr. Leslie A. Moren, Elko, first vice president, and Dr. Clare W. Woodbury, Las Vegas, second vice president. The next annual meeting of the association will be held in Reno in October 1951.

NEW YORK

Postgraduate Instruction.—The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged two lectures for the Jefferson County Medical Society, meeting in the Black River Valley Club, Watertown, at 6:30 p. m.

Dec. 19, Robert B. Burtch, Alexandria Bay, N. Y., and D. Naldrett White, Kingston, Canada, Recent Viral Disease Epidemic at Alexandria Bay.
Jan. 18, Nathaniel Kwit, New York, Management of Congestive Failure.

Dr. Small to Head Psychiatry Department.—Dr. S. Mouchly Small, New York, has been appointed head of the department of psychiatry at the University of Buffalo School of Medicine. He will also be director of psychiatry at Meyer Memorial Hospital. Dr. Small has been assistant resident in psychiatry at the Institute of Human Relations in New Haven, Conn., assistant resident and resident psychiatrist at the Payne Whitney Psychiatric Clinic of New York Hospital, instructor in psychiatry at Cornell and assistant medical director and consultant in psychiatry, National Hospital for Speech Disorders, New York. From 1943 to 1947 he was consultant in psychiatry to the American Cyanamid Corp., serving simultaneously as consultant in psychiatry and neurology at Vassar College. He was a psychiatrist at New York Hospital Rehabilitation Clinic from 1944 to 1946. Since 1947 Dr. Small has been neuropsychiatric consultant to the Surgeon General of the U. S. Army, serving also as consultant and lecturer to the Veterans Administration and lecturer at Columbia University College of Physicians and Surgeons.

New York City

Fourth Harvey Lecture.—Alfred E. Mirsky, Ph.D., member of the Rockefeller Institute for Medical Research, will deliver the Fourth Harvey Lecture of the current series at the New York Academy of Medicine on December 21, on "Chemical Aspects of the Cell Nucleus."

Personals.—Dr. Emil Froeschels has been made head of the new clinic for speech and voice disturbances at Beth David Hospital.——Dr. James W. Smith, assistant clinical professor of ophthalmology, has been promoted to clinical professor of ophthalmology at the Post Graduate Medical School of the New York University of Bellevue Medical Center.

Cancer Memorial Fund Check for Research.—A check for $100,000, from funds collected for the Damon Runyon Memorial Fund, was presented to the Sloan-Kettering Institute for Cancer Research at a luncheon November 10. The check was given to Dr. Cornelius P. Rhoads, director of the Memorial Center for Cancer and Allied Diseases, with which the institute is affiliated.

Friday Afternoon Lectures.—The twenty-fourth series of Friday Afternoon Lectures being given by the New York Academy of Medicine at 4:30 p. m. is open to physicians and to medical students. Lectures through February in the series are as follows:

Dec. 15, Oskar Diethelm, New York, Advances in Treatment of Chronic Alcoholism.
Jan. 5, J. Lester Gabrilove, New York, Virilizing Syndrome in Man.
Jan. 12, Sydney Farber, Boston, Newer Agents in the Treatment of Acute Leukemia.
Jan. 9, André Cournand, New York, Newer Methods in Diagnosis of Congenital Cardiac Anomalies.
Jan. 26, Judah L. Ebin, New York, Surgical Treatment of Parkinsonism, Indications and Results.
Feb. 2, William J. Grace, New York, Experimental Study of Chronic Ulcerative Colitis.
Feb. 9, Robert S. Hotchkiss, New York, Diagnosis of Testicular Deficiency States.
Feb. 16, Arthur H. Blakemore, New York, Shunt Operations for Treatment of Portal Hypertension with Special Reference to Cirrhosis of the Liver.

Pay Blue Cross Subscription with Rent.—With the enrolment of 252 residents of Bell Park Gardens, veteran's cooperative housing project in Queens, New York's Blue Cross Plan established a precedent by arranging for subscription fees to be paid along with the rent. The veterans and their family dependents were eligible for enrolment beginning December 1. It is reported that at least an equal number of families living in Bell Park Gardens are already receiving Blue Cross coverage through groups in organizations where they are employed. Associated Hospital Service, New York's Blue Cross Plan, is a nonprofit, hospital-sponsored organization, which now serves 4,500,000 persons in the Greater New York area.

Admissions Committee Reorganized.—The Office of Admissions of the New York University College of Medicine has been reorganized. Dr. H. Sherwood Lawrence has been appointed secretary of the Committee on Admissions. In order to allow the most thorough consideration of the qualifications of candidates seeking admission, enlargement of the college's Office of Admissions became necessary because of the problems arising from multiple applications for entry into medical schools. More than 2,500 applications had been made for the 125 places in the college's first year class. Almost every candidate applied to several schools, Dean Currier McEwen said, while some were known to have applied to as many as 40 schools at once. Dr. Lawrence is an instructor in medicine.

TEXAS

A. O. A. Chapter at Southwestern.—At the installation dinner of the Alpha Omega Alpha honorary medical society chapter at Southwestern Medical College, Dallas, November 10, Chauncey D. Leake, Ph.D., Galveston, spoke on "The History of Medical Ethics." Dr. Walter L. Bierring, Des Moines, Ia., president of the fraternity, and Dr. Josiah J. Moore, Chicago, secretary, were the installing officers. President T. S. Painter of the University of Texas was made an honorary member and presided at the dinner.

Postgraduate Medical Assembly.—The International Post-Graduate Medical Assembly of Southwest Texas will be held in San Antonio at the Municipal Auditorium January 23-25, under the presidency of Dr. Merton M. Minter, San Antonio. Among the speakers will be:

Frank L. Meleney, New York, Intelligent Use of Antibacterial Agents.
Keith J. R. Wightman, Toronto, Canada, Clinical Disturbances of Fat Absorption.
C. Wilbur Rucker, Rochester, Minn., Lesions at the Optic Chiasm.
Hugh F. Hare, Boston, Effect of Radiation on Personnel.
Isador S. Ravdin, Philadelphia, Gallstone Disease.
Oscar Swinford Jr., Charlottesville, Va., ACTH and Cortisone in Allergic Diseases.
Mather Cleveland, New York, Intracapsular Fractures of the Neck of the Femur.
Alexander A. Weech, Cincinnati, Certain Aspects of Infant Feeding.
M. Ruiz Castaneda, México, D. F., Problems Concerning Epidemiology, Pathology and Pathogenesis of Brucellosis.
James H. Wall, White Plains, Psychoneurotic Conditions with Particular Emphasis on Obsessive and Compulsive States.
Walter B. Hoover, Boston, Dizziness from the Otolaryngological Standpoint.
William W. Scott, Baltimore, Geriatrics with Special Reference to Urological Problems.
Charles H. Slocumb, Rochester, Minn., Conditions in Which ACTH and Cortisone Are of Value.
Frank R. Lock, Winston-Salem, N. C., Management of Prolonged Labor.
William A. Meissner, Boston, Pathologic Observations on Thoracoplasty Failure in Tuberculosis.

The fee of $20 should be sent to International Post-Graduate Medical Assembly, P. O. Box 2445, San Antonio, Texas.

VIRGINIA

Narcotic Violations.—Dr. Ernest B. Nuckols, Cumberland, pleaded guilty to an indictment charging violation of the federal narcotic laws in the U. S. District Court at Lynchburg. On June 5 his sentence of one year and one day was suspended and he was placed on probation for a period of three years. He was also fined $10,000, which was to be paid within 60 days.

Dr. Marshall T. Garrett of Charlottesville pleaded guilty to an indictment charging violation of the federal narcotics laws in the U. S. District Court at Lynchburg. On June 5 his sentence of one year and one day was suspended and he was placed on probation for a period of three years. He was fined a sum of $2,500, which was to be paid within 60 days.

WISCONSIN

Marquette University Appointments.—Dr. William W. Engstrom, who has been associated with the Yale University School of Medicine since 1946, was one of three assistant professors named this fall to the staff of Marquette University School of Medicine, Milwaukee. Others appointed are Dr. John E. Steinhaus, department of pharmacology, and Dr. B. Wesley Catlin, former associate in research at Carnegie Institute, Long Island, N. Y. Dr. Michael W. Shutkin, attending physician at Mount Sinai Hospital, Milwaukee, has been made an assistant clinical professor of medicine. Four Milwaukee physicians have joined the Marquette staff as clinical instructors. They are Drs. Paul S. Pierson, Lloyd F. Jenk, Walton D. Thomas and E. Franklin Carl. Two Marquette medical faculty members were recently promoted to the rank of full clinical professors. They are Drs. Edward R. Krumbiegel, Milwaukee city health commissioner, Marquette Department of Public Health, and Gerhard D. Straus, department of otolaryngology.

GENERAL

Dr. Myers Named Dearholt Medalist.—Dr. J. Arthur Myers, Minneapolis, was named the recipient of the 1950 Dearholt Medal, given annually by the Mississippi Valley Conference on Tuberculosis for outstanding contributions to tuberculosis control. Dr. Myers is a past president of the National Tuberculosis Association, chief of the University of Minnesota Chest Clinic and a former member of the editorial board of the *American Review of Tuberculosis*, publication of the American Trudeau Society. He has written a history of antituberculosis work in Minnesota.

Plague Infection in Fleas.—According to the U. S. Public Health Service, in a report dated October 20, plague infection was proved positive in 17 fleas taken from two wood rats trapped April 22 about 17 miles east of Albuquerque in Bernalillo County, New Mexico. Under the same date the service reported that plague infection was proved positive in the following specimens taken two and a half miles west of Perico in Dallam County, Texas: 118 fleas from one prairie dog shot October 10 and 118 fleas flagged October 7 from prairie dog burrows.

Treatment Centers for Emotionally Disturbed Children.—A national survey of treatment centers that handle emotionally disturbed children will be made by the Child Welfare League of America under a grant of $26,000 from the Marshall Field Foundation. The purpose of the study is to analyze the best means of aiding emotionally disturbed children and preventing juvenile delinquency. The league will also provide consultation service to communties, social agencies and individuals interested in this work. Joseph Reid, assistant director of the league, will direct the survey.

Fraternity Fellowship Awarded.—Kappa Kappa Gamma, women's college fraternity, has awarded the $2,000 Harriet Ford Griswold Fellowship for study of rehabilitation in physical medicine to Dr. Yaeko Kawai, of Tokyo. The grant will provide transportation, lodging, food and incidental expense. New York University-Bellevue Medical Center, department of physical medicine and rehabilitation, will provide free tuition. The International Society for the Welfare of Cripples will administer the grant. Dr. Kawai was valedictorian of her class at Women's Medical College in Tokyo and since graduation has been engaged in research work at the biochemical laboratory of Nihon University.

Dr. Cook Honored.—Resolutions passed at the recent decennial meeting of the U. S. Pharmacopeial Convention were presented to E. Fullerton Cook, Pharm. D., Philadelphia, retired U. S. P. Revision chairman, at a luncheon on November 28. The luncheon was attended by most of the members of the board which served during the 1940-1950 decade as well as many of the present board. Dr. Cook was associated with the Pharmacopeia for 50 years. He served as assistant to the chairman of the U. S. P. Committee of Revision for almost 20 years and held the chairmanship from 1920 to 1950. His leadership helped make possible great contributions to the advancement of pharmacy, medicine, dentistry and other related sciences. The resolutions of the convention were presented to Dr. Cook in the form of an embossed and illuminated framed scroll.

Student Nurse Admissions Reach Five Year Record.—Schools of nursing throughout the United States admitted in 1950 the largest class in five years, according to the Committee on Careers in Nursing. A total of 44,185 first year students were admitted to the nearly 1,200 state-approved schools offering basic nursing programs, representing an increase of 1.3 per cent over admissions for the preceding year. The largest percentage increases were reported by Mississippi and Louisiana, 28 and 53 per cent, respectively. Although total admissions were up, 26 states showed fewer students admitted than in 1949, seventeen of these in the southern and far western sections of the country. Decreases of as much as or more than 15 per cent were reported in the District of Columbia, South Carolina, Montana, Arkansas and Arizona.

Society Elections.—At the annual meeting of the American Society for the Study of Arteriosclerosis in Chicago in November Dr. E. Cowles Andrus, Baltimore, was installed as president, and Dr. G. Lyman Duff, Montreal, was chosen vice president. Dr. Otakar J. Pollak, Quincy, Mass., was reelected secretary-treasurer.——At the recent meeting of the American Chemical Society Richard O. Roblin Jr., Ph.D., Stamford, Conn., was elected 1951 chairman of the Division of Medicinal Chemistry. Chester M. Suter, Ph.D., Rensselaer, N. Y., was elected vice chairman and Marcus G. Van Campen, Ph.D., Cincinnati, secretary-treasurer.——The Central Society for Clinical Research has elected the following officers to serve in 1951: Dr. William B. Bean, Iowa City, president; Dr. William B. Wood Jr., St. Louis, vice president, and Dr. Kenneth G. Kohlstaedt, Indianapolis, secretary-treasurer.

Surgeons Sectional Meetings.—The first of a series of seven sectional meetings of the American College of Surgeons will be held in St. Louis on January 22-23, with headquarters at the Hotel Statler. The other sectional meetings will be held in Hot Springs, Va., February 26-27; Philadelphia, March 5-6; New Haven, Conn., March 16-17; Portland, Ore., March 26-27; Denver, April 6-7, and Detroit, May 10-11. The medical profession at large and medical students are invited to the meetings. The St. Louis meeting, opening at 8:30 a. m. both mornings with medical motion pictures, will be followed at 10:00 a. m. by a scientific session on Surgery for Ischemic Diseases, Emergency Management of the Injured Chest, Fractures about the Ankle Joint, and Hematuria Following Trauma: Present Means of Diagnosis and Treatment. At a dinner the first evening Dr. Melvin A. Casberg, dean, St. Louis University School of Medicine, will speak on "The Medical Organization of the Chinese Communists." From 8:30 to 10:00 p. m. there will be a symposium on cancer. On the day following the sectional meeting in St. Louis, January 24, a full day of clinics will be held in St. Louis hospitals for the visiting surgeons.

WHO Sets Standards for 16 Biological Substances.—An international standard for pituitary adrenocorticotropic hormone (ACTH) has been established by the Expert Committee of the World Health Organization on Biological Standardization. Meeting in Geneva in November, the committee also set up international standards for 15 other biologic substances, including certain vitamins, hormones, antibiotics, serums and antitoxins. (Thirty-nine biologic preparations had already been standardized either by WHO or, previously, the Health Organization of the League of Nations.) International biologic standards are provided by WHO in order to enable research workers and manufacturers everywhere to have a single, internationally accepted measure for the activity of the substances which they produce. Among some of the most important standards established last week, were also those for anti-Rh, and anti-A and anti-B blood-grouping serums: lecithin and cardiolipin, tubocurarin, streptomycin and dihydrostreptomycin, aureomycin, terramycin and diphtheria toxoid. A standard was also set up for hyaluronidase. In addition, in order to facilitate research on antibiotics, the committee decided to recommend the establishment of an international collection of specimens of new antibiotics to be made available to scientists all over the world. The international collection of new antibiotics recommended by the Expert Committee would consist of preparations contributed by research workers and found to present clinical and research interest. It would be kept at the National Institute for Medical Research (London) for distribution on request to scientists anywhere in the world. The committee also reported progress in standardizing vaccines. Examination of samples suitable to serve as standards is being carried out on cholera, whooping cough and smallpox vaccines in various laboratories.

Courses in Use of Radioisotopes.—The eighteenth, nineteenth and twentieth courses in the technics of using radioisotopes in research will be given by the Special Training Division of the Oak Ridge Institute of Nuclear Studies during the winter and spring of 1951. Dates for the courses are January 8-February 2, February 19-March 16 and April 16-May 11. The courses consists of laboratory work, lectures on laboratory experiments, general background lectures and seminars on special topics. Experiments are conducted covering the use and calibration of instruments, the purification and separation of radioactive materials from inert and other radioactive materials, measurement and use of C^{11}, pile activations, radioautographs and the like. Seminars include the use of radioisotopes in animal experimentation, use of radioisotopes in humans, principles and practice of health physics, design of radiochemical laboratories and effect of radiation on cells. The Special Training Division can accommodate 32 participants at each of the three courses. A registration fee of $25 is charged, and participants will bear their own living and traveling expenses. A two week advanced course in radioisotopes will be given by the Oak Ridge Institute of Nuclear Studies beginning February 5. The course is intended for research workers in the field of medicine who have had experience in the basic technic of using radioisotopes. Lecturers from numerous hospitals using radioisotopes, Oak Ridge National Laboratory and staff members of the Medical and Special Training Division of the Institute will participate. The first week will be devoted to lectures and laboratory work on radioisotopes in therapy and the second with radioisotopes in clinical tracer studies. A limited number of applicants who are able to attend for only one week can be accommodated. A fee of $25 will be charged for the course. Applications are available from Dr. Ralph T. Overman, chairman, Special Training Division, Oak Ridge Institute of Nuclear Studies, P. O. Box 117, Oak Ridge.

CANADA

Eye Bacteriology Laboratory.—An eye bacteriology laboratory has been established by the Banting Institute in the Department of Ophthalmology, University of Toronto. The laboratory is under the direction of Dr. Hugh L. Ormsby. Ophthalmologists may refer their private patients to the laboratory for bacteriologic investigation.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Written.* July 20. Given simultaneously in several cities in the United States. Final date for filing application is Jan. 20. *Oral.* Coronado, Calif., April 4-7 and Memphis, Oct. 14-17. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

American Board of Neurological Surgery: *Oral.* Chicago, May 1951. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

American Board of Obstetrics and Gynecology: Part I, Written Examination and Review of Case Histories. Various locations. Feb. 2, 1951. Final date for filing applications was Nov. 5. *Oral.* New York City, May 10-16. Final date for filing application is Feb. 2. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, Pa.

American Board of Ophthalmology: *Written.* Various Centers, Jan. 5-6, 1951. *Oral.* San Francisco, March 11-15; New York, May 31-June 5; Chicago, October 8-13. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: *Part II.* Chicago, Jan. 25-26. Final date for filing applications was Aug. 15, 1950. Final date for receipt of Part I applications for 1951 is Dec. 30, 1950. Sec., Dr. Harold A. Sofield, 122 So. Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Written.* New York, Jan. 8-11, 1951. *Oral.* Richmond, Va., May 1-5. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

American Board of Pathology: *Written and Oral. Pathological Anatomy and Clinical Pathology.* Cleveland, April 23-24. Final date for filing application is March 15. Sec., Dr. Robert A. Moore, 1402 S. Grand Blvd., St. Louis.

American Board of Pediatrics: *Written.* Jan. 19. Under local monitors. Only written examination to be given during 1951. *Oral.* New Orleans, March 2-4. Ex. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Proctology: *Part I in Anorectal Surgery and Proctology.* Kansas City, Minneapolis, Philadelphia and San Francisco, May 12. Sec.-Gen., Dr. Louis A. Buie, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Psychiatry and Neurology: New York, Dec. 18-19. Final date for filing applications was Sept. 1. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology: *Oral.* Atlantic City, June 5-9. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various centers, March 1951. Final date for filing applications was Dec. 1, 1950. *Written.* Various centers, Oct. 1951. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

Board of Thoracic Surgery: *Written.* Various Centers, Feb. 17. Final date for filing application is Feb. 1. *Oral.* New York City, April 19. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit.

American Board of Urology: Chicago, Feb. 10-14, 1951. Final date for filing applications was Sept. 1, 1950. Chicago, Feb. 9-13, 1952. Final date for filing applications is Sept. 1. Sec., Dr. Harry Culver, 314 Corn Exchange Bldg., Minneapolis 15.

Coming Medical Meetings

American Academy of Allergy, Hotel Statler, New York, Feb. 5-7. Dr. Walter S. Burrage, 208 E. Wisconsin Ave., Milkaukee 2, Secretary.

American Academy of Orthopaedic Surgeons, Palmer House, Chicago, Jan. 27-Feb. 1. Dr. Harold B. Boyd, 122 S. Michigan Ave., Chicago 3, Secretary.

American Society for Surgery of the Hand, Palmer House, Chicago, Jan. 26. Dr. Joseph H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

Atlanta Graduate Medical Assembly, Municipal Auditorium, Atlanta, Ga., Feb. 5-7. Mrs. Stewart R. Roberts, 768 Juniper St. N.E., Atlanta, Executive Secretary.

International Post-Graduate Medical Assembly of Southwest Texas, Municipal Auditorium, San Antonio, Jan. 23-25. Dr. John H. Hinchey, P. O. Box 2445, San Antonio 6, Secretary.

Puerto Rico, Medical Association of, Santurce, Dec. 13-17. Dr. Victor J. Montilla, P. O. Box 3860, Santurce 29, Secretary.

DEATHS

Shurly, Burt Russell ⊕ Detroit; born in Chicago, July 4, 1871; Detroit College of Medicine, 1895; did postgraduate work at the University of Vienna; professor emeritus of otolaryngology at Wayne University College of Medicine, formerly known as the Detroit College of Medicine, which he joined in 1896, serving as instructor, lecturer in physiology, professor of otolaryngology and at one time dean; veteran of the Spanish-American War; for many years chief surgeon of the Michigan Naval Reserve; during World War I was in command of Base Hospital No. 36, American Expeditionary Forces stationed in Vittel, France, and was cited by General Pershing for his army service; later a colonel in the medical reserve corps; awarded the Purple Heart and the Legion of Honor; secretary of the Section on Laryngology, Otology and Rhinology from 1911-1913 and chairman 1913-1914 and from 1922 through 1948; member of the House of Delegates of the American Medical Association; past president of the American Laryngological Association, American Laryngological, Rhinological and Otological Society and the American Academy of Ophthalmology and Otolaryngology, which awarded him its gold medal; past president of the Detroit Academy of Medicine; fellow of the American College of Physicians and member of the American Climatological Association; fellow and formerly member of the board of governors of the American College of Surgeons; past president of the Detroit Chapter of the Association of Military Surgeons of the United States; past commander of the Detroit Chapter of Military Order of the World War; for many years member of the board of education, of which he had been president; a member of the board of directors and vice president of the American Board of Otolaryngology from 1930 to 1945; chief of staff, Shurly Hospital; president of Detroit Tuberculosis Sanitarium; consulting otolaryngologist at Woman's Hospital, Receiving Hospital and Harper Hospital, where he died October 20, aged 79, of coronary sclerosis and diabetes mellitus.

Brown, Percy ⊕ Egypt, Mass.; born in Cambridge, Nov. 24, 1875; Harvard Medical School, Boston, 1900; completed internship at Children's Hospital in Boston; in 1903 organized x-ray departments at the Children's Hospital and Carney Hospital in Boston and in 1904 inaugurated x-ray service at the Long Island Hospital and at St. Elizabeths' Hospital in Boston; in 1903 served as an assistant in the use of the roentgen ray at his alma mater; member of the American Roentgen Ray Society, of which, after serving in various official capacities, he became president in 1911 and in 1939 was awarded its president's medal; past president of the Radiological Society of North America, which in 1922 awarded him the gold medal for his research in roentgen diagnosis and therapy; fellow of the American College of Physicians and the American College of Radiology; member of the New York Roentgen Society, Philadelphia Roentgen Ray Society, New England Roentgen Ray Society, the original Roentgen Society of London and before World War I the Deutsche Roentgen Gesselleschaft of Berlin; served during World War I as a major in the medical corps, U. S. Army, with Base Hospital No. 5 in France; specialist certified by the American Board of Radiology; variously associated, as radiologist, with the Jackson Clinic, Madison, Wis., the Grunow Clinic of Phoenix, Ariz., the Western Pennsylvania Hospital of Pittsburgh and St. Luke's Hospital in New York; author of a monograph (1935) on "American Martyrs to Science Through Roentgen Rays"; died October 8, aged 74, of hypertensive heart disease.

Cottis, George W., Jamestown, N. Y.; born in Guelph, Canada, March 18, 1880; Cornell University Medical College, New York, 1904; specialist certified by the American Board of Surgery; past president of the Medical Society of the State of New York; past president of the Jamestown and Chautauqua County Medical societies; fellow of the American College of Surgeons; a captain overseas in the Royal Army Medical Corps during World War I; in 1928 member of the House of Delegates of the American Medical Association; served on the staffs of Jamestown General and Woman's Christian Association hospitals; formerly chairman of the New York State governor's committee on public health and of the board of visitors of the State Institute for the Study of Malignant Diseases in Buffalo; associate editor of the *New York State Journal of Medicine* from November 1944 to December 1945; past president of the local Chamber of Commerce; died in St. Cloud, Fla., October 19, aged 70, of coronary occlusion.

Brunn, Harold ⊕ San Francisco; born in San Bernardino, Calif., in 1874; University of Pennsylvania Department of Medicine, Philadelphia, 1895; an Associate Fellow of the American Medical Association; member of the founders group of the American Board of Surgery; clinical professor of surgery, emeritus, at the University of California Medical School in San Francisco; chairman of the Section on Surgery, General and Abdominal, American Medical Association, 1933-1934; member of the American Surgical Association, Pacific Coast Surgical Association and the American Association for Thoracic Surgery, of which he had been a past president; fellow of the American College of Surgeons; established the Harold Brunn Cardio-Vascular Research Institute; served as surgeon in chief at San Francisco Hospital, University of California Service and was chief of surgical service at Mount Zion Hospital; in 1942 50 pupils and friends dedicated a book to him; died October 5, aged 76.

Levenson, Walter Sabin ⊕ Boston; Harvard Medical School, Boston, 1922; specialist certified by the American Board of Surgery; president of the Greater Boston Medical Society; member of the New England Pediatric Society; fellow of the American College of Surgeons; during World War II served as a commander in the U. S. Navy Reserve and was decorated with the Navy Bronze Medal for service in the Philippine invasion; instructor in surgery, Tufts College Medical School and assistant in surgery at Harvard Medical School; on the staffs of the Beth Israel Hospital, Boston Dispensary and Boston Floating Hospital; died in New York University Hospital in New York September 22, aged 52, of carcinoma of the liver.

Dye, William Joseph Paul ⊕ Wolfeboro, N. H.; born in Sistersville, W. Va., Nov. 10, 1902; Harvard Medical School, Boston, 1925; secretary of the Carroll County Medical Society; vice president of the New Hampshire Medical Society; secretary-treasurer of the New Hampshire Surgical Club; certified by the National Board of Medical Examiners; specialist certified by the American Board of Surgery; member of the New England Obstetrical and Gynecological Society and the New England Surgical Society; chairman of the state board of registration in medicine; on the staff of Huggins Hospital, where he died October 17, aged 47, of coronary thrombosis.

Getchell, Albert Colby, Worcester, Mass.; born in Waterville, Maine, July 9, 1857; Jefferson Medical College of Philadelphia, 1885; member of the American Medical Association; for many years president of the Worcester Tuberculosis Relief Association; fellow of the American College of Surgeons; served on the staffs of Belmont, Memorial and Worcester City hospitals; consulting laryngologist and trustee, Rutland, (Mass.) State Sanatorium; consulting physician, Hospital Cottages for Children in Baldwinsville; organized the Worcester District Medical Library, serving as its librarian for many years; died in Princeton October 1, aged 93, of senility.

Kidner, Frederick Clinton ⊕ Detroit; born in Ipswich, Mass., April 13, 1879; Harvard Medical School, Boston, 1904; emeritus professor of clinical orthopedic surgery at Wayne University College of Medicine; specialist certified by the American Board of Orthopaedic Surgery; member of the American Orthopedic Association, of which he had been president, Clinical Orthopedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; affiliated with Children's Hospital of Michigan, Woman's Hospital, Receiving Hospital and Harper Hospital, where he died October 20, aged 71.

Bosworth, Boardman Marsh ⊕ Bronxville, N. Y.; born in New York June 7, 1898; Columbia University College of Physicians and Surgeons, New York, 1931; specialist certified by the American Board of Surgery; certified by the National Board of Medical Examiners; member of the American Association for the Surgery of Trauma; fellow of the American College of Surgeons; served during World War II; affiliated with Lawrence Hospital in Bronxville, Grasslands Hospital in Valhalla, Mount Vernon (N. Y.) Hospital and New York City Hospital; killed near Hainesville, N. J., October 9, aged 52, in a private airplane crash.

Lynch, Charles Francis ⊕ Springfield, Mass.; born in Waltham, Mass., in 1871; New York University Medical College, New York, 1897; an Associate Fellow of the American Medical Association; fellow of the American College of Surgeons; served overseas during World War I; at one time member of the state public health council; formerly chairman

---

⊕ Indicates Fellow of the American Medical Association.

of the police commission; senior surgeon, Mercy Hospital; consulting surgeon, Health Department Hospital in Springfield, Wing Memorial Hospital in Palmer and Amherst College Infirmary in Amherst; died in Mercy Hospital September 27, aged 79, of coronary thrombosis.

Lee, Thomas Benjamin ⊕ Collingswood, N. J.; born in 1881; Jefferson Medical College of Philadelphia, 1905; past president of the Camden County Medical Society and the New Jersey State Department of Health; formerly trustee of the New Jersey State Medical Society; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; consulting gynecologist, Zurbrugg Memorial Hospital, Riverside, Salem County Memorial Hospital, Salem, Underwood Hospital, Woodbury and the Cooper Hospital in Camden, where he died October 17, aged 69.

Parowski, Stephen Anthony ⊕ Assistant Surgeon Lieutenant (jg) U. S. Navy, retired, San Diego, Calif.; born in Chicago Aug. 31, 1899; Rush Medical College, Chicago, 1927; served during World War I; entered the U. S. Navy June 30, 1925; retired March 31, 1928 for incapacity resulting from an incident of the service; fellow and past president of the American College of Chest Physicians; member of the American Trudeau Society; on the staffs of Mercy, Quintard and Balboa hospitals and Rest Haven Preventorium; died October 7, aged 51.

Alguire, Annie Bell McCallum ⊕ Belvidere, Ill.; Trinity Medical College, Toronto, Canada, 1895; formerly member of the county school board; affiliated with Highland and St. Joseph's hospitals; died October 8, aged 82, of hypertension and cerebral hemorrhage.

Andres, Francis Anthony ⊕ Allegany, N. Y.; Georgetown University School of Medicine, Washington, D. C., 1931; served during World War II; physician at St. Bonaventure's (N. Y.) College; on the staffs of Olean General Hospital and St. Francis Hospital in Olean, where he died October 21, aged 46, of coronary insufficiency.

Aptaker, Albert J., ⊕ Forest Hills, N. Y.; University of Maryland School of Medicine, Baltimore, 1927; associate attending physician on the medical staff of Queens General Hospital in Jamaica; died October 19, aged 47, of coronary occlusion.

Benson, Otis Otto Sr., Minneapolis; Keokuk (Ia.) Medical College, 1898; Rush Medical College, Chicago, 1902; formerly associated with the Indian Service; died October 16, aged 83, of uremia.

Brisbine, Royal Ellis ⊕ Burbank, Calif.; State University of Iowa College of Medicine, Iowa City, 1906; affiliated with Behrens Memorial Hospital and Glendale Sanitarium and Hospital, where he died September 30, aged 70, of coronary occlusion.

Brown, Edwin Martin, Washington, N. C.; Bellevue Hospital Medical College, New York, 1896; member of the American Medical Association; past president of the Beaufort County Medical Society; received a citation for service rendered as examiner for the county selective board in World Wars I and II; served as county health officer; affiliated with Fowle Memorial Hospital; died September 28, aged 77, of coronary thrombosis.

Buchanan, John Roosevelt ⊕ Youngstown, Ohio; State University of Iowa College of Medicine, Iowa City, 1925; member of the American Academy of Orthopaedic Surgeons; specialist certified by the American Board of Orthopaedic Surgery; served during World War II; on the staff of Youngstown Hospital; died October 19, aged 49, of carcinoma of the pancreas.

Budau, John Harry Diederichs, Milford, Conn.; Yale University School of Medicine, New Haven, 1900; member of the American Medical Association; died in Bridgeport August 21, aged 75, of rupture of an abdominal arteriosclerotic aneurysm.

Burt, Lawrence William, New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1936; member of the American Medical Association; served during World War II; affiliated with Touro Infirmary; died September 29, aged 40.

Ciolli, Dominic Trinity ⊕ Buffalo; University of Buffalo School of Medicine, 1920; member of the American Psychiatric Association; affiliated with Edward J. Meyer Memorial, Deaconess, Sisters of Charity and Buffalo Columbus hospitals; died in the township of Holland, N. Y., October 22, aged 55, of coronary disease.

Clendenen, Charles M., Damascus, Va.; University College of Medicine, Richmond, 1910; president of the Bank of Damascus; died in the George Ben Johnston Hospital, Abingdon, September 29, aged 66, of congestive heart failure.

Cogswell, John Wilkinson, Strasburg, Ohio; State University of Iowa College of Homeopathic Medicine, Iowa City, 1906; member of the American Medical Association; served during World War I; on the associate staff of the Massillon (Ohio) Hospital and Union Hospital in Dover, where he died October 9, aged 67, of heart disease.

Crossland, John R. A., St. Joseph, Mo.; Meharry Medical College, Nashville, Tenn., 1890; died in State Hospital No. 2, September 13, aged 86.

Cush, Thomas James ⊕ Johnstown, Pa.; Jefferson Medical College of Philadelphia, 1924; fellow of the American College of Surgeons; president of the Cambria County Medical Society; chief of orthopedic surgery at Mercy Hospital; a member of the reserve staff of the Conemaugh Valley Memorial Hospital, where he died September 30, aged 49, of coronary occlusion.

Davis, Albert Wellington ⊕ Kansas City, Mo., Kansas City Medical College, 1902; formerly on the staff of St. Luke's Hospital, where he died October 4, aged 87, of complications following a fractured hip received in a fall.

de la Pila Iglesias, Manuel, Ponce, P. R.; Universidad de Barcelona Facultad de Medicina, Spain, 1906; past president of the Porto Rico Medical Association; fellow of the American College of Physicians; member of House of Delegates of the American Medical Association in 1940, 1941, 1946 and 1947; medical director of the Clinica Quirurgica Dr. Pila; killed October 7, aged 66, in an automobile accident.

Dodge, Charles Harwood, Clinton, Wis.; Marquette University School of Medicine, Milwaukee, 1913; served in France during World War I; health officer of Clinton township; formerly member of the school board; died in Wisconsin General Hospital, Madison, September 8, aged 59, of coronary thrombosis.

Dryfuss, Barney Joachim ⊕ New York; University of Louisville (Ky.) Medical Department, 1903; Cornell University Medical College, 1905; formerly on the faculty of Cornell University Medical College; on the staff of St. Clare's Hospital, where he died October 14, aged 71, of dissecting aneurysm.

Duncan, Oscar Allen, Fort Leavenworth, Kan.; St. Louis University School of Medicine, 1905; civilian physician for the Army at Fort Leavenworth; died in the U. S. Army Hospital October 3, aged 70, of progressive muscular atrophy.

Dunkley, David A., Roanoke, Va.; University College of Medicine, Richmond, 1910; member of the American Medical Association; affiliated with Shenandoah Hospital, where he died September 26, aged 67, of thrombophlebitis with multiple pulmonary emboli.

Dunlay, Emmett Blaine, Watertown, N. Y.; University of Buffalo School of Medicine, 1920; member of the American Medical Association; served as medical school inspector for the public school system in Watertown; formerly on the staffs of the House of the Good Samaritan and Mercy Hospital; died recently, aged 57.

Evans, Evan Albert, Rosedale, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; affiliated with Vermillion County Hospital in Clinton; died in St. Anthony's Hospital, Terre Haute, October 16, aged 71, of cerebral hemorrhage and hypertension.

Felberbaum, David ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1906; affiliated with Montefiore and Mount Sinai hospitals; died October 26, aged 67, of cerebral thrombosis.

Fitch, Josiah Whitaker, Louisville, Ky.; University of Louisville Medical Department, 1907; member of the American Medical Association; died in Jewish Hospital, September 22, aged 70, of gastric ulcer.

Fitch, Stewart Jackson, Laguna Beach, Calif.; the Hahnemann Medical College and Hospital, Chicago, 1914; served during World War I; died September 26, aged 65, of arteriosclerosis and edema of brain.

Fledderjohann, Henry E., New Knoxville, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1886; died in Dayton October 2, aged 94, of chronic myocarditis.

Fraser, Stuart Evans, North Miami, Fla.; the Hahnemann Medical College and Hospital, Chicago, 1917; died in Duke Hospital, Durham, N. C., October 5, aged 64, of arteriosclerosis with gangrene of both legs.

Gabel, William Jacob, Syracuse, N. Y.; Syracuse University College of Medicine, 1916; served on the staff of the Hospital of the Good Shepherd, where he died October 15, aged 60, of cardiac decompensation.

Gaines, Frank McFarland, Carrollton, Ky.; Kentucky School of Medicine, Louisville, 1893; formerly associated with the U. S. Public Health Service Reserve and was on the staffs of various Veterans Administration hospitals; served during World War I; died October 5, aged 80, of coronary occlusion.

Garman, Russell Arthur ⊕ Jeannette, Pa.; Jefferson Medical College of Philadelphia, 1930; past president of the Westmoreland County Medical Society; served during World War II; was shot and killed by a former patient October 1, aged 46.

Gershenson, Edward Harry, New York; Long Island College Hospital, Brooklyn, 1905; died in Beekman Hospital October 5, aged 68, of cerebral accident.

Goldsmith, Leon Albert ⊕ Portland, Ore.; Harvard Medical School, Boston, 1922; assistant clinical professor of cardiology at the University of Oregon Medical School; specialist certified by the American Board of Internal Medicine; member of the North Pacific Society of Internal Medicine; fellow of the American College of Physicians; affiliated with Multnomah Hospital; died in Chicago November 2, aged 53, of coronary heart disease.

Grace, James Joseph, Springfield, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1933; member of the American Medical Association; school physician; served in the Pacific area during World War II; affiliated with Mercy Hospital; died October 17, aged 44, of carcinoma of the rectum.

Griffith, Guy Everett ⊕ Tacoma, Wash.; Northwestern University Medical School, Chicago, 1920; died in Santa Monica, Calif., October 13, aged 61, of cerebral vascular accident and coronary occlusion.

Grover, Joseph Isaac ⊕ Quincy, Mass.; Harvard Medical School, Boston, 1911; an Associate Fellow of the American Medical Association; affiliated with Quincy City Hospital; died October 19, aged 65, of carcinoma of the duodenum.

Hapeman, Harry, Minden, Neb.; Rush Medical College, Chicago, 1882; fellow of the American College of Surgeons; died October 29, aged 92, of uremia.

Harrison, William H., Kokomo, Ind.; Medical College of Indiana, Indianapolis, 1896; member of the American Medical Association; past president of the Howard County Medical Society; died October 23, aged 85, of cerebral hemorrhage and arteriosclerosis.

Hazlett, Almon Cyrus ⊕ Wyoming, Pa.; Jefferson Medical College of Philadelphia, 1913; served with the American Expeditionary Forces overseas during World War I; past president of the Luzerne County Medical Society; affiliated with Nesbitt Memorial Hospital in Kingston and Pittston (Pa.) Hospital; died in Philadelphia October 17, aged 59, of ruptured aneurysm of the circle of Willis.

Hogan, Stephen Clement ⊕ Chicago; Chicago College of Medicine and Surgery, 1912; died October 31, aged 67, of cerebral hemorrhage and hypertensive heart disease.

Jacobs, Francis Edward ⊕ San Diego, Calif.; University of Oregon Medical School, Portland, 1929; past president of the San Diego County Medical Society; served on the staffs of San Diego County and Quintard hospitals; died in Woodland Clinic Hospital, Woodland, October 14, aged 47, of coronary occlusion.

Kenkel, Henry Frank, Cincinnati; University of Cincinnati College of Medicine, 1920; died October 19, aged 56, of acute coronary occlusion.

Koempel, Franz, New York; Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1893; died October 31, aged 80.

Lasher, Earl Parsons, Newtown, Conn.; Albany (N. Y.) Medical College, 1898; formerly affiliated with the New York Eye and Ear Infirmary in New York; died in the Danbury (Conn.) General Hospital October 28, aged 77, of cerebral hemorrhage and pulmonary embolism.

Liles, Homer D., Flowery Branch, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; served during World War I; died in Hall County Memorial Hospital, Gainesville, October 20, aged 61, of cardiac asthma.

Mack, Gertrude Griswold, New York; New York Medical College and Hospital for Women, Homeopathic, New York, 1897; died recently, aged 77, of coronary thrombosis.

McCord, James Bennett, Oakham, Mass.; Northwestern University Medical School, Chicago, 1894; for many years medical missionary of the American Board of Foreign Missions in Africa and founder of the McCord Zulu Hospital, the first hospital for Africans in Natal Province; died October 5, aged 80, of heart disease.

McCoy, Earl Tucker, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1918; member of the American Medical Association; formerly on the staff of the Methodist Hospital of Southern California; died September 14, aged 65, of coronary thrombosis.

McMahan, Asher Reid, Memphis, Tenn.; Rush Medical College, Chicago, 1908; member of the American Medical Association; served on the staffs of Gartly-Ramsay, Baptist, St. Joseph and Methodist hospitals; medical director of the Columbian Mutual Life Insurance Company; died in Baptist Hospital October 17, aged 67, of carcinoma of the prostate.

Macon, Gideon Hunt, Warrenton, N. C.; University College of Medicine, Richmond, 1910; member of the American Medical Association; served as vice president of the Medical Society of the State of North Carolina; died in Park View Hospital, Rocky Mount, October 1, aged 63, of coronary occlusion.

Meck, Henry Lehr, Dundee, Mich.; Detroit College of Medicine, 1910; member of the American Medical Association; served during World War I; on the staff of Mercy Hospital, Monroe; for many years president of the Monroe County Bank; died in Ontario, Canada, October 4, aged 65, of heart disease.

Mullins, Charles Ellison ⊕ Meadville, Miss.; Memphis (Tenn.) Hospital Medical College, 1909; served as vice president of the Mississippi State Medical Association; county health officer; died in King's Daughters Hospital, Brookhaven, September 22, aged 66, of acute cardiac failure.

Munn, Jesse Adolphas ⊕ McAlester, Okla.; University of Arkansas School of Medicine, Little Rock, 1910; served during World War I; associated with St. Mary's and Albert Pike hospitals; died August 27, aged 67, of coronary embolism.

Resnisky, Andrew Francis, Hartford, Conn.; Georgetown University School of Medicine, Washington, D. C., 1923; fellow of the American College of Surgeons; on the staff of St. Francis Hospital; died in Windham Memorial Hospital in Willimantic, September 28, aged 52, of coronary thrombosis.

Rogers, James Coburn, Bellefonte, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1905; school physician; on the staff of Centre County Hospital; died in Philipsburg (Pa.) State Hospital September 29, aged 66, of arteriosclerotic heart disease.

Schoolman, Noah, Chicago; Jefferson Medical College of Philadelphia, 1903; formerly associated with the Illinois Charitable Eye and Ear Infirmary; died October 21, aged 75, of arteriosclerotic heart disease.

Siefert, John Frederick, Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1888; died October 13, aged 88, of bronchopneumonia and cerebral thrombosis.

Taylor, Emora Arthur, Gulfport, Miss.; Leonard Medical School, Medical Department Shaw University, Raleigh, N. C., 1906; affiliated with Memorial Hospital; died September 13, aged 70, of cerebral hemorrhage and arteriosclerosis.

Twitchell, Edward Woodland, San Francisco; Cooper Medical College, San Francisco, 1892; specialist certified by the American Board of Psychiatry and Neurology; member of the American Medical Association; clinical professor of psychiatry emeritus at University of California Medical School; died September 2, aged 78, of cerebral hemorrhage.

Valentine, Clarence Medbery ⊕ Columbus, Ohio; Starling Ohio Medical College, Columbus, 1908; served during World War I; first health commissioner of Franklin County; affiliated with Mercy Hospital, St. Ann's Maternity Hospital and the Grant Hospital, where he died October 2, aged 67, of coronary thrombosis.

Wallace, George Sellers, Hilliard, Fla.; Jefferson Medical College of Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania and the American Medical Association; died in Lake City, September 26, aged 81, of carcinoma of the prostate.

Weber, Burghard Andrew, Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1898; died in Milwaukee County Hospital August 26, aged 76, of coronary thrombosis and diabetes mellitus.

FOREIGN LETTERS

LONDON

(From a Regular Correspondent)

Oct. 16, 1950.

Trend in Modern Surgery

Recently the London *Times* reported a speech given by Sir Cecil Wakeley, president of the Royal College of Surgeons, London, when he gave the inaugural address to the Westminster Medical School at Church House, Westminster, London. He said that there seemed to be a tendency for teachers to specialize in a small aspect of surgery and beat it until it was dead and to take teaching away from those who were practicing surgery as a full time occupation. The latter, he said, were the very persons who were continually in touch with patients and their diseases and, therefore, were perhaps better able to teach, because of their more practical and less academic knowledge. He said there was a danger of ultraspecialization, when men would perform only one type of operation. Such a state of affairs was bad for teaching and made for little progress. It was important that teaching hospital surgeons should remain general surgeons, but, on the other hand, it did not matter if they had a specialty, for instance, gastric surgery, thyroid surgery or urological surgery.

There was also a tendency for some workers to overlook clinical observation and to rely too much on roentgenograms and pathological or biochemical tests in making a diagnosis. He doubted whether the clinician of today had the clinical acumen of the late Victorian physicians, who used few tests and in many instances were extraordinarily accurate in their diagnosis. He mentioned the new Medical Act and hoped that when it came into force, making a year's postgraduate experience compulsory before registration, the qualified student would be able to take part of his year's postgraduate training with a general practitioner. Surgery had by no means arrived at its zenith, and further progress was not impossible, although it might well be that future research would eliminate some forms of surgical operations and that some disease which had been treated by surgical intervention would be cured by intravenously administered drugs. Sir Cecil Wakeley, who presented the prizes, was welcomed by Mr. H. M. Clowes, chairman of Westminster Medical School.

Smoking and Carcinoma of the Lung

A preliminary report on smoking and carcinoma of the lung, by Drs. Richard Doll and A. Bradford Hill, appeared in the December 9 issue of the *British Medical Journal*. It states that the great increase in the number of deaths attributed to cancer of the lung in the last 25 years justifies the search for a cause in the environment. The authors investigated the possible association of carcinoma of the lung with such factors as smoking, exposure to car and fuel fumes and occupation.

The material for the investigation was obtained from 20 hospitals in London. Social workers visited and interviewed each patient. Patients with stomach or large bowel carcinoma and a noncancer control group, comparable in age and sex with the patients with lung cancer, served for comparison. A group of 649 men and 60 women with carcinoma of the lung were interviewed. Three-tenths per cent of the men and 31.7 per cent of the women were nonsmokers. The corresponding figures in the noncancer control groups were 4.2 per cent for the men and 53.3 per cent for the women. Twenty-six per cent of the male and 14.6 per cent of the female patients with lung cancer smoked the equivalent of 25 or more cigarets a day prior to their illness, while only 13.5 per cent of the male and none of the female noncancer control patients smoked as much. Similar differences were found when comparisons were made between the maximum amounts ever smoked and the estimated total amounts ever smoked. Cigaret smoking was more closely related to carcinoma of the lung than pipe smoking. No distinct association was found with inhaling. Taken as a whole, the patients with lung cancer had begun to smoke earlier and had continued for longer periods than the controls; the differences, however, were not statistically significant. Rather fewer patients with lung cancer had given up smoking.

The possibility of unreliable results was considered—those that could be due to the selection of an unsuitable group of control patients, or patients having respiratory disease exaggerating their smoking habits, or bias on the part of the interviewers. Care was taken to eliminate all these fallacies.

From consideration of smoking histories of patients without cancer of the lung, a tentative estimate was made of the number of persons who smoked different amounts of tobacco in Greater London, and the relative risks of development of the disease among different grades of smokers were calculated. Speculative figures only were obtained, and it is suggested that above the age of 45 the risk of having the disease increases in simple proportion with the amount smoked, and it may be 50 times as great among those who smoke 25 or more cigarets a day as among nonsmokers. The authors observed sex ratio among nonsmokers (based, it must be stressed, on very few cases), saying the ratio can be readily accounted for if the true incidence among nonsmokers is equal in both sexes. It is not possible to deduce a simple time relation between the increased consumption of tobacco and the increased number of deaths attributed to cancer of the lung. It may possibly be due to improved diagnosis, and it may be because the carcinogen in tobacco smoke is introduced into the tobacco during its cultivation or preparation. Greater changes have taken place in the methods involved in these processes than in the actual amount of tobacco consumed.

Disordered Society

During his work in an international organization for the care of refugees R. N. Tronchin-James observed interesting patterns of human behavior in the insecure and disordered world of today. The refugee is the physical example of the insecurity that may overtake anyone. Observations made over 18 months on a refugee population of 30,000 in Austria are recorded. Although the population under consideration consisted of persons of every age group and many nationalities, various creeds and different professional, social and economic status, their situation reduced them to a common plight, with similar mental reactions.

The symptoms of more typical reactive or conversion neurosis were not found in this large population. A form of neurosis widespread among the refugees was characterized by emotional shock persisting for years, with suppression of active and aggressive psychic qualities, lack of volition and emotional incapacity to consider the future. There was a positive resistance to change, even though the present was more insecure, uncomfortable and completely different from the previous pattern of life. The physical care was good, and the physical necessity of transporting them to new countries was dealt with energetically and with considerable success.

When such situations are imminent, workers should attempt to restore the refugees to mental health, so that each regains the fullest vigor of his ethnic and individual capacities for dealing with the new situation and environment that he has to face. The capacity for adjustment to a new situation is a criterion of his mental health. To restore to the refugee the fullest enjoyment of that capacity should be the primary aim and, would decrease enormously the amount of purely supportive work that has to be done.

TURKEY

(From a Regular Correspondent)

ANKARA, Oct. 28, 1950.

Eleventh National Medical Congress

This congress was held at Ankara Oct. 16-19, 1950, under the auspices of Celal Bayar, president of Turkey, and with Adnan Menderes, the prime minister, as honorary president. It was attended by almost 700 members from all parts of the country. Dr. Ekrem Hayri Üstündag, minister of health and social assistance, opened the congress. The topic was tuberculosis.

Ord. Prof. Tevfik Saglam of Istanbul University, Turkey's foremost authority on tuberculosis, spoke on tuberculosis control in Turkey; Dr. Tevfik Ismail Gökee, chief of the Istanbul Heybeliada Tuberculosis Sanatorium, on the positive results of antibiotic therapy; Dr. Etienne Berthet, consultant of tuberculosis for the World Health Organization, rehabilitation, reeducation and the medicosocial aspects of tuberculosis; Dr. Ihsan Rifat Sabar, tuberculosis control in other countries; Prof. Nusret Karasu, the source of tuberculosis infection and its effects and on the result of BCG vaccination of primary school children in Ankara; Dr. Ahmed F. Erbelger, cavernostomy, tamponade and extrapleural pneumothorax; Dr. Sacit Tezelli, the result of extrapleural collapse therapy in pulmonary tuberculosis; Dr. Turgut Targay, the role of pneumoperitoneum in the treatment of tuberculosis; Dr. Yakup Çelebi, chief of the Istanbul-Haydar Pasha Tuberculosis Hospital, the epidemiology of tuberculosis; Dr. Nureddin Onur, the results of BCG vaccination in Istanbul; Dr. Sebib Say, the result of BCG vaccination in infants, preschool and school children in Izmir; Ord. Prof. Mazhar Osman Uzman and Prof. Ihsan Sukri Aksel, psychological symptoms in the course of tuberculosis meningitis; Dr. (V.M.D.) R. Üner and Dr. (V.M.D.) F. Turker, tuberculosis in stray cats; Ord. Prof. Akif S. Shakar, streptomycin therapy in bone and joint tuberculosis; Dr. F. Dikengil, confirmation of bronchial destruction in tuberculous lymphadenopathy by postmortem bronchography; Prof. Nusret Karasu, the army and tuberculosis; Dr. Hasan Fehmi Gökalp, occupational therapy for the tuberculous; Prof. Rasim Adasal, dementia precox and the etiological relation to tuberculosis; Dr. Baha Arkan, school hygiene and tuberculosis; Prof. K. Mutlu, ten years' research on tuberculosis specimens in the pathological anatomy laboratory; Dr. Neşati Üster, tuberculosis in Bursa City and epidemiology; Dr. Orhan Zihni Sanus, increase of tuberculosis in Turkey in relation to standards of living; Prof. N. Karasu, Dr. N. Menemenli and Dr. M. Özköse, glucoregulation in tuberculosis; Dr. Ö. Bican, surgery in pulmonary tuberculosis; Dr. S. Berkman, mass chest examination; Dr. T. Gökce and Dr. S. Velicangil, investigation of bovine type tuberculosis in Turkey; Dr. I. Gürevin, spontaneous hypochloremia and hypochloremic nephropathy in tuberculosis; Dr. N. Tuna, changes in blood circulation in collapse therapy; Dr. A. L. Karan, skin tuberculosis and the skin in tuberculosis; Dr. R. T. Kinacigil, vitamin D_2 therapy in skin tuberculosis, and Prof. Karasu, Dr. Baloglu and Dr. Dülgeroglu, tuberculosis and adrenal function. Forty-three other communications were presented. This congress was accompanied with an exhibit of domestic and foreign pharmaceutical preparations and public health propaganda. After the congress, the health exhibit was open to the public.

At the United States Information Service Library at Ankara an opportunity was provided for the inspection of medical and medicosocial publications. Congress members were presented with a copy of "Books on Science," published by the United States Department of State. The next medical congress is to be held in 1952 at Ankara; the topic will be rheumatism.

Influenza Epidemic

With intermittent local epidemics, widespread epidemics of influenza occur in Turkey about every five years. The last epidemic outbreak in almost all the 63 provinces occurred in January 1949. Starting abruptly in Ankara, it continued for four weeks and subsided suddenly. The incidence was highest in Ankara (25 to 80 per cent); the mortality rate there was comparatively low. There were 126 deaths in the first week, of which 32 were caused by bronchopneumonic complications, 161 deaths in the second week, of which 53 were caused by bronchopneumonic complications, and 127 deaths in the third week, of which 46 were caused by bronchopneumonic complications.

According to investigations by Dr. Sabahaddin Payzin, director of the control laboratory at the Ankara Refik Saydam Institute of Hygiene, and Dr. Sadik Okkan, the serums of all patients had reacted positively to A antigen. A number of cases of highly toxic conditions with such complications as albuminuria, hilar lymphadenia and encephalomeningitis were observed.

Five groups of four mice each were given a nasal inoculation with a throat secretion from five patients. After three days a strain was cultivated. The dried lungs of the mice were crushed in a sterile mortar with sterile sand and penicillin, streptomycin and 5 cc. of sodium chloride solution added. Four other mice were inoculated with this suspension. The second passage caused several deaths. Samples of the fifth strain were sent for control to the World Influenza Central Institute, where Prof. Andrews identified them as an unknown subtype. Inoculations of squirrels also proved the virulence of the virus.

The virus of the Ankara epidemic was not the same as that of the French and Italian epidemics that occurred two months earlier. The Italian virus was the B type; the French type A virus was not exactly like the Ankara virus. The influenza virus type of surrounding countries not having been announced, the virulence of the Ankara endemic virus was possibly the result of mutation. Inoculation of the Refik Saydam Institute of Hygiene personnel with vaccine from the Eli Lilly laboratory proved effective. The following year there was no influenza epidemic in Turkey.

Fourth Turkish Microbiology Congress

Under the presidency of Dr. Ekrem Hayri Üstündag the congress was held on October 18-19 at Ankara. Dr. Nureddin Onur, chief of the Istanbul Hygiene Laboratory, spoke on the results of BCG vaccination in Istanbul; Dr. Sebib Say, on the results of BCG vaccination in Smyrne; Dr. (V.M.D.) Turgud Argun, tuberculosis epidemiology of cows in Turkey; Ord. Prof. Ihsan Hilmi Alantar and his associate Dr. Sezai Bedreddin Tümay of Istanbul University, clinical aspects of toxicosis and therapy and prevention of diarrhea in infants; Dr. N. Fakaçelli of Istanbul, parenteral treatment of infant diarrhea; Dr. Zekai Muammer Tuncman, Istanbul, epidemiology of rabies and precautionary measures in Turkey; Prof. Ihsan Shukrü Aksel of Istanbul University, encephalomeningitis after rabies vaccination, and Ord. Prof. (V.M.D.) Sureyya Aygün, control of rabies in animals. The next congress is to be held in 1952 at Ankara; the topics will be epidemiology and etiology of Q fever, poliomyelitis and tetanus. The seventh National Surgical Congress was held also on October 18; the most important subject was bone tuberculosis, with emphasis on the therapy of tuberculosis of the vertebrae, on which Prof. Hayri Nishantash reported.

Professor Nihad Reshad Belger

The minister of health and social assistance has resigned because of poor health. His successor is Dr. Ekrem Hayri Üstündag. He studied hygiene and bacteriology in Germany for five years and has for many years been active in public health work. He taught at the medical school in Damascus before World War I.

ITALY

(From a Regular Correspondent)

FLORENCE, Sept. 20, 1950.

Natural and Artificial Iodoproteins

Continuing the series of lectures on protein held at the Superior Institute of Public Health, Prof. Jean Roche of the Collège de France discussed natural and artificial iodoproteins. He said that the principal problems of iodine biochemistry in animals are linked to the presence of this element in some proteins, among which are three iodoamino acids, derived from L-thyroxine: 3-monoiodinethyroxine, 3-5-diiodinethyroxine and thyroxine. These substances are formed by halogenation of thyroglobulin in the thyroid of vertebrates and that of scleroprotein in the horny skeleton of invertebrates. The same result may be obtained with artificial halogenation, the biologic activity of the natural and of the artificial iodoproteins being qualitatively identical, except for some differences especially concerning the galactogenous power. Knowledge of the physiological property of the various iodoproteins is of importance for their application in medicine and zootechnics. With a brief survey of the composition and property of thyroglobulin the speaker pointed out that the thyroid effects, in the first stage, the synthesis of these proteins by incorporating tyrosine and, in the second stage, the halogens. Proteidogenesis and iodization are two successive, independent processes; the latter contributes to the formation of thyroxine. The formation of iodoproteins by direct action of the halogen on various substrates, such as casein, insulin and pepsin, has been brought about primarily to obtain products endowed with metabolic activity or antigoitrogenic potency. These, under certain conditions, induce the formation of thyroxine, its quantity being a function of some variables, the most important of which is the structure of the iodonated protein. The physiological activities of the thyroglobulins and of the artificially iodized proteins are manifold and are due to the presence of thyroxine. The study of the intensity of these actions in relation to their content of the hormone has been the subject of many discussions. The results obtained concerning the antigoitrogenic action of iodocasein and thyroglobulin show that the effects observed are not only related to the content of thyroxine and to the degree of assimilation of the latter but to the rapidity of its reabsorption. The author concluded that the biochemistry of natural and artificial iodoproteins is linked to the biochemistry of iodothyroxine and of the thyroxine.

Medicosurgical Society

At a meeting of the Medicosurgical Society of Pisa, Drs. Tangheroni and Bottone discussed methods of diagnosing spasmophilic diathesis and their clinical value. They applied to infants the hypocalcemia and hyperpnea tests, suggested as diagnostic methods for spasmophilia in adults. They combined the humoral investigation on calcium-phosphorus metabolism with the study of chronaxia and recommended the use of these methods for the diagnosis of spasmophilic diathesis.

Dr. Tarantino reported investigations that show how the synthesis of glycogen performed in vitro by the liver of rats treated with pituitary adrenocorticotropic hormone (ACTH) can take place starting from carbohydrates such as glucose, in addition to protein and lipid derivatives.

Dr. Landi surveyed aseptic necrosis of bone, with special reference to the upper epiphysis of the femur, to the scaphoid and the semilunar bones. These osseous alterations, found in numerous clinical forms, such as osteochondritis and the results of trauma, have in common a disturbance of the blood circulation, and they all lead to the final picture of arthrosis deformans.

Drs. Conti and Andreani reported results of their study on lipemic variations produced by the administration of large doses of pituitary adrenocorticotropic hormone or by prolonged administration of this drug for several days. They observed that an intramuscular injection of large doses is followed by hyperlipemic or hypolipemic reactions, closely related to the neuroendocrine orientation of the patients and to the state of hypophysial function. In patients with clear manifestations of hypopituitarism, there is a constant increase of the total lipids and cholesterols, while rapid diminution of lipids may be observed in patients with hyperpituitarism. The speakers observed a constant diminution of total lipids and cholesterols after a prolonged treatment with pituitary adrenocorticotropic hormone in all cases. The authors are of the opinion that the lipemic and cholesteremic variations induced by adrenocorticotropic stimuli represent manifestations of the general lipid metabolism, induced and sustained by the reactivated function of the adrenal cortex.

Society of Gerontology

The Italian Society of Gerontology and Geriatrics was officially established at a meeting at the Medical Clinic of the University of Florence. Professor Greppi, clinician of Florence, was elected president. The society developed from a group of research workers in this field formed in 1948 through the efforts of Prof. Maurizio Ascoli, clinician of the University of Palermo. The society contributed numerous reports to the First International Congress held at Liège and will participate in the next National Congress of Medicine and Surgery.

BELGIUM

(From a Regular Correspondent)

LIÈGE, Oct. 30, 1950.

Meningitis and Streptomycin

Intensive studies have been devoted to the treatment of tuberculous meningitis with streptomycin. The universities of Brussels (with Dubois, Linz, Van Wien, Govaerts and Durieu), Liège (with Roskam, Plumier, Reginster and their pupils), Louvain (with Van Goidsenhoven and Stevens) and Ghent (with Hooft and Deneve) have contributed to the study of this problem. It seems that there is general agreement that combined treatment by intramuscular and intraspinal or suboccipital injections is important. According to Dubois, this combined treatment with daily intraspinal injection is maintained for 45 days and is followed by a rest period of 20 days. Then follows a second period of 20 days' treatment with daily intramuscular and intraspinal injections and a second rest period of 20 days. The third course consists of treatment for 30 days with intraspinal injections every two days.

In patients undergoing treatment for miliary tuberculosis, the authors performed a spinal puncture every eight days, which sometimes enabled them to detect the meningeal infection before the appearance of the clinical symptoms. In such cases, the combined treatment was instituted and the result of cultures later proved the sound basis of this procedure. Inoculation of guinea pigs, culture of the cerebrospinal fluid and determination of streptomycin levels in the blood and the cerebrospinal fluid were done periodically. The fasting sugar content of the cerebrospinal fluid was determined and then compared with the sugar content of the blood. From these observations during the initial period of the disease, the authors reached the following conclusions: combined treatment arrests the rapid progression of tuberculous meningitis. After the patients have passed the difficult period, the first five months, in which the prognosis is greatly influenced by the early institution of treatment, they show the exterior aspects of convalescence. However, some of these patients are still threatened by serious difficulties, especially by relapse. In addition, the following observations were made: 1. Patients in whom treatment is started more than 15 days after onset have a slight chance of surviving. 2. The existence of paralysis and of a comatose condition at the beginning of treatment indicates usually a fatal prognosis. 3. Prolonged vomiting during treatment indicates unfavorable extension of the disease.

Hooft and Deneve, on the basis of clinical symptoms and results of examination of the cerebrospinal fluid and the eyegrounds, are in favor of prolonging the treatment in certain cases as long as eight or nine months. Maldague reports the following results. The percentage of apparent cures in a group of 39 children, in whom the treatment was started six to fourteen months prior to reporting, was 51. There were two cases with serious, definitive sequels. The outcome in 8 per cent of the children is still doubtful. The death rate is high during the first month of treatment and decreases considerably after the second month. The prognosis for children under two years is particularly unfavorable. The coexistence of miliary tuberculosis does not seem to aggravate the prognosis of meningitis. In 15 of 18 cases of miliary tuberculosis of the lungs, a complete and seemingly definitive roentgen clearing of the lungs was obtained in one to six months, often even in two or three months. Plumier reported the following results: 38 deaths and 26 survivals. The 26 surviving patients included 16 showing a favorable and six an unfavorable course. Of the 10 patients with associated miliary tuberculosis, nine died and one recovered.

Some authors attributed the failures to the formation and development of fibrinous or fibrocaseous deposits rather than to the acquired streptomycin resistance of the bacilli. Van Goidsenhoven believes that, because of the availability of streptomycin, tuberculous meningitis and miliary tuberculosis are no longer hopeless diseases. The two essential factors for the distant prognosis are: (1) early diagnosis and immediate institution of treatment and (2) prolonged combined treatment with daily intramuscular and intraspinal injections. Relapses after cessation of treatment and the late recurrence of the disease toward the end of the treatment threaten the later prognosis of convalescent patients, but the initial tuberculous localization always constitutes a threat. The more important local complications during the course of intraspinal therapy are meningeal hemorrhage, pachymeningitis and hydrocephalus. The more serious toxic manifestations are auditory and vestibular disturbances. With the dosage used at present, total deafness occurs rarely. A likelier toxic manifestation is insufficiency of renal function caused by abnormally high levels of streptomycin in the blood.

The Red Cross in the Congo

The Red Cross in the Congo, which is a section of the Belgian Red Cross, recently published reports on its activity during 1948 and 1949, which extended to the following spheres: care of lepers, venereal diseases, medical assistance to the indigent, creation and maintenance of training schools for nurses and teaching the essentials of hygiene to the native population. Protection of children is also a large part of its activities. Outpatient consultation services and clinical services have been established for the care of nursing infants. A complete medicosocial service has been established, which has been extended by the creation of a workshop for the mothers of the native population. The workshop makes children's clothes for needy members of the service. That the native women gladly devote part of their time to the Red Cross is an encouraging sign, because the feeling of mutual help and devotion is little developed among natives beyond the restricted circle of the family or of the tribe.

Death of Prof. André Gratia

The death of Professor Gratia has deeply moved the medical profession in Belgium. Just 57 years old, he died while still very active in scientific work. Since 1933, he was professor of bacteriology at the University of Liège and director of the bacteriologic service of Malvoz Institute. As corresponding member of the Royal Academy of Medicine of Belgium, he distinguished himself particularly by his investigations on bacteriophages, plant viruses, immunity to anthrax and antibiotics. In 1946 the government commissioned him to direct a center of research on penicillin in Liège.

COLOMBIA

(From a Regular Correspondent)

Bogotá, Oct. 20, 1950.

Glucose Blood Levels and Phosphoric Esters of Thiamine

Drs. Gonzalo Montes Duque and Julio Cárdenas Araque presented, at the last session of the National Academy of Medicine, September 28, the result of preliminary experiments on glucose levels in man and animals after the administration of the pyrophosphoric ester of thiamine (cocarboxylase) and of the orthophosphate ester of thiamine. Dr. Cárdenas thought that certain disorders of the nervous system, such as schizophrenia, might be due to a disturbance of carbohydrate metabolism of the neurons. The theory is supported by the favorable results obtained by the use of insulin shock in some cases of schizophrenia. The speakers studied the multiple factors which control cerebral metabolism and tried cocarboxylase in the treatment of schizophrenia. Their results suggest that cocarboxylase affects carbohydrate metabolism. They found that administration of cocarboxylase, either orally or intraperitoneally, to mice regularly produced convulsions. Since the pyrophosphoric radical has a hypocalcemic action which might have accounted for the observed convulsions, sodium pyrophosphate was tested on another group of animals. The results were the same; the animals had convulsions. Since the orthophosphoric radical does not cause hypocalcemia, a new compound was synthesized in which the pyrophosphoric radical was replaced by an orthophosphoric radical. Thiamine orthophosphate given intraperitoneally induced convulsions in three of the four mice treated. No convulsions occurred when sodium orthophosphate was administered, indicating that the orthophosphoric radical, by itself, has no convulsive action, whereas, the orthophosphate of thiamine has such an action.

The authors then tested these substances on clinical and experimental diabetes mellitus; results were promising. Subcutaneous and oral administration of thiamine pyrophosphate to rabbits caused a decided fall in blood sugar levels, while in human cases of diabetes mellitus the oral administration of thiamine pyrophosphate and thiamine orthophosphate caused a reduction of blood sugar values and a disappearance of glycosuria. Six patients, to whom different doses of phosphoric esters of thiamine were administered, were observed. Sugar levels in the urine and in the blood were determined during the first three hours or during the first 24 hours following administration of the esters. The results were similar: diminution of sugar in the blood and disappearance of sugar from the urine one hour after administration. These experiments seem to indicate that the phosphoric esters of thiamine have a favorable action on carbohydrate metabolism. The action of the phosphoric esters seem to be similar to that of insulin. It is possible that these compounds can replace insulin and that insulin acts through the phosphorization of the thiamine. This interpretation would agree with Houssay's observation that the phosphate levels in the blood plasma fall through the action of insulin. R. Boulin, P. Uhry and co-workers have shown that during the diabetic coma the most important disturbance of carbohydrate metabolism is the increased pyruvic acid level in the blood, on which insulin has no effect. These authors used cocarboxylase and reported good results in 10 cases of diabetic coma. The results of Montes and Cárdenas, regulation of blood sugar by oral administration of cocarboxylase, and those of Boulin and Uhry, diminution of pyruvemia with intravenously administered cocarboxylase, prove the efficacy of this compound in the treatment of diabetes.

Bureau of Medical Economic Research

MATERNAL MORTALITY IN THE UNITED STATES IN 1949

FRANK G. DICKINSON, Ph.D.
and
EVERETT L. WELKER, Ph.D.
Chicago

The downward trend of maternal mortality in the United States continued through 1949, according to data collected from the state health departments. Provisional reports received in correspondence with the states furnished information on the numbers of live births and maternal deaths for 47 states and the District of Columbia. With the 1948 data for the nonreporting state, Rhode Island, an estimated maternal mortality rate of slightly less than one maternal death per 1,000 live births was obtained for the United States in 1949. The maternal mortality problem in the United States is no longer a serious national problem but is, rather, one for local action in those areas in which maternal mortality rates are still relatively high. The rate for the United States has been declining rather steadily since 1933, the first year in which all the states were in the birth and death registration areas. The rate for 1933 was 6.2 and the rates for the intervening years were as follows:

1934	5.9	1939	4.0	1944	2.3
1935	5.8	1940	3.8	1945	2.1
1936	5.7	1941	3.2	1946	1.6
1937	4.9	1942	2.6	1947	1.3
1938	4.4	1943	2.5	1948	1.2

In 1933 the rate for all deaths in Sweden was 3.1 and for white deaths only in New Zealand, 4.4. When the 1949 rates are published for Sweden and New Zealand they, also, will probably be slightly below the provisional rate of one for the United States. Hence it should be clear to the public that the United States, with its variations in climate and population and with its extreme size, has just about caught up with these two small healthy countries with homogeneous populations. In fact, differences in future maternal mortality rates between these three and others of the healthier nations are likely to be so small in magnitude that they could be a result of minor errors in reporting births and deaths and in erroneously attributing some deaths of women (that is, in coding) to maternal causes.[1] In at least three ways 1949, therefore, marks an end of an era in maternal mortality: The United States is the first large nation to push its maternal mortality rate slightly below the apparently irreducible minimum of one maternal death per 1,000 live births; critics of the quality and quantity of medical care in America will probably no longer attempt to make unfavorable comparisons between the United States and any nation, large or small, in the matter of maternal mortality rates, and 1949 was a transition year in coding the causes of death, a transition from the fifth to the sixth revision of the International List.

FIFTH AND SIXTH REVISIONS OF THE LIST

In this study an attempt has been made to estimate the number of maternal deaths during 1949 on the basis of both the fifth and the sixth revisions of the International List in order to provide 1949 rates comparable to the maternal mortality rates for the preceding 10 years and to the rates of future years; our major interest is in comparisons with the 10 preceding years. The sixth revision of the International List went into effect in some states on Jan. 1, 1949. Of the 49 states, including the District of Columbia as a state for this purpose, only 23 states reported 1949 maternal deaths on the basis of both the fifth and sixth revisions of the list. Only in the United States was the sixth revision widely used before Jan. 1, 1950, the "effective" date for most of the other nations. Thus 1949 was a year of transition in coding the causes of death.

As might be expected, there is some difference of opinion as to the precise effect of the new list on the number of maternal deaths, but there is general agreement that the number of maternal deaths will be fewer.[2] Much will depend on the care taken by the physician when specifying the underlying cause of death on the new death certificate form. The present problem is to estimate the probable effect and to express it as a percentage of the fifth to the sixth and vice versa. Table 1 presents the number of maternal deaths in the 23 states where the coding was done under both the fifth and sixth revisions. The total number of maternal deaths in these 23 states for 1949 coded under the fifth revision was 1,316; the number under the sixth revision was 1,244; thus the latter was 94.5 per cent of the former and the former 105.8 of the latter (bottom row, table 1). On the basis of this information for these 23 states, we concluded for the purposes of this paper that for every 100 maternal deaths in 1949 coded under the sixth revision there would have been approximately 106 deaths under the fifth revision and for every 100 maternal deaths under the fifth revision there would have been approximately 95 deaths under the sixth revision.[3] Consequently, we shall call 106 and 95 per cent our comparability ratios, with the understanding that they are not based on maternal deaths in all states in 1949. The maternal mortality rates for the United States in 1949, 1.0 (0.98) based on the fifth revision of the International List and 0.9 (0.93) based on the sixth revision, must be considered provisional or estimated rates.[4] The "true" national rate for 1949 on the basis of either the fifth or sixth revision may never be known. (The rate for the 45 states which reported the number of maternal deaths under the sixth revision was 0.93.)

Director (Dr. Dickinson) and Associate in Mathematics (Dr. Welker), Bureau of Medical Economic Research, American Medical Association.

Virginia Van Heule Horan and Helen Hulings Boyles, research assistants in the Bureau of Medical Economic Research, prepared the tables.

[1] The latest available published rates for the nations with the lowest maternal mortality rates are as follows: Australia (excluding aboriginals) 1947, 1.9; Canada 1948, 1.5; Denmark 1948, 0.9; England and Wales 1947, 1.2; Finland 1947, 2.1; Netherlands 1947, 1.4; New Zealand (excluding Maoris) 1947, 1.1; Norway 1947, 1.5; South Africa (rate per 1,000 [total] births for Europeans only) 1947, 1.4; Sweden 1945, 1.3, and Switzerland 1947, 1.8.

[2] Erhardt, C. L., and Weiner, L.: Changes in Mortality Statistics Through the Use of the New International Statistical Classification, Am. J. Pub. Health. **40:** 6 (Jan.) 1950.

[3] Computation of the standard deviation for either of these two national comparability ratios, 1.06 and 0.95, would be misleading because the maternal deaths used in computing these ratios are not a random sample of the universe. Hence the reliability of each of these two ratios cannot be tested statistically. If these 23 state ratios (fifth to sixth revisions) were arrayed in descending order, it would be evident that the highest values are for the states with the largest number of maternal deaths. The ratios are greater than 1.08 for Georgia, Illinois, New York and North Carolina. On the other hand, the ratio is relatively low in all the states reporting fewer than 50 maternal deaths. The median, mode and mean of these 23 state ratios are 1.000, 1.000 and 1.016. Although a difference in this direction might be rationalized, the difference seems to be too great to result from purely random factors. Would the national ratio be 1.07 if Pennsylvania and Ohio, each with more than 100 maternal deaths, had coded their maternal deaths on the basis of both revisions? Since our sample includes fewer than one-half the maternal deaths in 1949, our comparability ratio must be used cautiously by statisticians. We have, therefore, deliberately rounded it to 1.06 as a warning to readers that they should await the findings of the National Office of Vital Statistics, which will code from the death certificates all maternal deaths on the basis of both the fifth and sixth revisions. Some authorities predict that this comparability ratio may be as high as 1.10. All we can say is that on the basis of our (biased) sample it is 1.058, which we have rounded to 1.06; conversely, we have rounded the ratio of the sixth to the fifth revision data from our computed national ratio of 0.9453 to 0.95. These two rounded values have been used in preparing the estimated rates—three in column 4 and 22 in column 5 of table 2 for those states which did not code on the basis of both the fifth and the sixth revisions.

[4] The maternal mortality rate overestimates the true risk of death from these causes because the rate is based on registered births. If, in a given year, the estimated number of unregistered births is 5 per cent of the registered births the "correct" maternal mortality rate is the rate based on registered deaths divided by 1.05. While it is necessary in historical comparisons to use the traditional maternal mortality rate, the probability of surviving pregnancy, childbirth and the puerperium in any one year—say the current year—should be based on all live births, not merely on registered births. For a discussion of the tendency of the maternal mortality rate to overestimate the true risk of death from maternal causes see pages 48-49 of Vital Statistics Rates in the United States, 1900-1940, Bureau of Census, United States Department of Commerce, Government Printing Office, Washington, 1943. An unpublished report of a sample developed by the National Office of Vital Statistics in the process of coding the causes of all deaths in 1949 provides an entirely different reason for our believing that our estimated national maternal mortality rate of 0.98 is too high.

But the rates for all states in 1950 will presumably be based on the sixth revision. Hence the 1949 rates estimated on the basis of the fifth revision are more useful in making comparisons with rates for earlier years, and those based on the sixth revision, with 1950 and future years.

Table 2 presents the basic data on live births and maternal deaths in each state and in the United States for 1949 as well as the maternal mortality rates for 1949, 1948 and 1933. The reported number of maternal deaths coded under the fifth revision (column 3) and under the sixth revision (column 2) are presented; likewise the reported or estimated (by the comparability ratio) maternal mortality rates under the fifth and sixth revisions are shown in columns 5 and 4. No reference will be made hereafter in this paper to rates based on the sixth revision.

RATES AND RANGE DECLINE

In the comparison of the state rates in column 5 (fifth revision) for 1949 with those for 1948 in column 6, declines are indicated for 35 states, including the District of Columbia. For five states the rates were unchanged and for only 9 were there increases from 1948 to 1949. Most of these increases were very slight. Many of the individual states have rates which are truly astounding.

Table 1.—*Comparability Ratios for Twenty-Three States*

State	Number of Maternal Deaths: 5th Revision (1)	Number of Maternal Deaths: 6th Revision (2)	Ratio 5th to 6th (3)
Delaware	5	5	1.000
District of Columbia	15	17	0.882
Georgia	185	171	1.082
Illinois	144	129	1.116
Iowa	35	36	0.972
Kansas	25	27	0.926
Kentucky	99	94	1.053
Maryland	35	36	0.972
Montana	15	15	1.000
Nebraska	24	25	0.960
Nevada	4	4	1.000
New Hampshire	8	8	1.000
New York	238	218	1.092
North Carolina	142	128	1.109
North Dakota	9	9	1.000
Oklahoma	71	69	1.029
Oregon	21	20	1.050
Utah	10	10	1.000
Vermont	4	4	1.000
Virginia	88	84	1.048
Washington	36	36	1.000
West Virginia	53	52	1.019
Wisconsin	50	47	1.064
Totals	1,316	1,244	.....
Ratio of totals	.....	.....	1.058

Our present national rate of 1.0 for 1949 compares favorably with the 0.9 reported for Denmark for 1948, the lowest ever recorded by any nation in published reports now available. In the United States there were 26 states with rates lower than this record of 0.9. It has been previously pointed out in many articles that international comparisons between the United States and the small countries with homogeneous populations are somewhat strained. In spite of the handicap placed on the United States by such comparisons, it is gratifying to see that these obstacles have been almost entirely overcome in the problem of maternal mortality and that we are now apparently almost tied with the leader. It is even more startling that 30 states, more than one half of the total, have rates actually lower than 1.0. It should also be noted that these low rates are not chance occurrences for 1949 only, because many of these states have been consistently better than any nation in the world. In many instances the populations of the states in question are larger and less homogeneous than those of the small nations with the outstanding health records frequently cited in the literature.

Even in the 17 states with rates over 1.0, childbearing is becoming quite safe. Only two states have rates above 2.0; Mississippi has a rate of 2.4 and Alabama, a rate of 2.1. There are 14 states with rates within the range 1.1 to 1.9 inclusive.

Table 2.—*Maternal Mortality in the United States and Each State, 1933, 1948 and 1949**

		1949 Maternal Deaths Reported		Deaths per 1,000 Live Births			
				1949			
	Live Births (1)	6th Rev. (2)	5th Rev. (3)	6th Rev.† (4)	5th Rev.‡ (5)	1948 (6)	1933 (7)
Alabama	83,222	161	..	1.9	2.1	2.3	7.5
Arizona	19,714	27	..	1.4	1.5	1.3	6.5
Arkansas	47,790	81	..	1.7	1.8	2.1	7.8
California	240,504	163	..	0.7	0.7	0.9	4.6
Colorado	32,345	29	..	0.9	0.9	1.0	6.2
Connecticut	39,861	25	..	0.6	0.7	0.6	5.0
Delaware	7,546	5	5	0.7	0.7	1.1	6.9
District of Columbia	27,661	17	15	0.6	0.5	0.9	5.0
Florida	61,833	108	..	1.7	1.9	1.9	11.5
Georgia	93,557	171	185	1.8	2.0	2.1	7.5
Idaho	15,802	14	..	0.9	0.9	0.8	4.3
Illinois	185,593	129	144	0.7	0.8	0.8	5.0
Indiana	93,919	62	..	0.7	0.7	1.0	5.9
Iowa	61,765	36	35	0.6	0.6	0.8	5.3
Kansas	42,514	27	25	0.6	0.6	0.8	5.5
Kentucky	75,610	94	99	1.2	1.3	1.5	5.3
Louisiana	74,985	94	..	1.3	1.3	1.7	8.4
Maine	21,911	18	..	0.8	0.9	0.8	7.0
Maryland	54,048	36	35	0.7	0.6	0.9	5.0
Massachusetts	96,041	58	..	0.6	0.6	0.7	6.7
Michigan	156,469	...	105	0.6	0.7	0.8	6.1
Minnesota	74,026	...	54	0.7	0.7	0.7	4.4
Mississippi	66,128	147	..	2.2	2.4	2.6	7.3
Missouri	87,039	72	..	0.8	0.9	1.1	5.8
Montana	15,359	15	15	1.0	1.0	0.9	5.7
Nebraska	31,482	25	24	0.8	0.8	0.7	4.6
Nevada	3,737	4	4	1.1	1.1	1.6	8.1
New Hampshire	12,228	8	8	0.7	0.7	1.2	6.9
New Jersey	97,414	72	..	0.7	0.8	0.8	5.4
New Mexico	20,326	29	..	1.4	1.5	2.4	8.6
New York	302,730	218	238	0.7	0.8	0.9	6.2
North Carolina	107,150	128	142	1.2	1.3	1.9	6.8
North Dakota	16,826	9	9	0.5	0.5	1.0	4.9
Ohio	183.836	108	..	0.6	0.6	0.9	6.1
Oklahoma	49,971	69	71	1.4	1.4	1.1	6.5
Oregon	35,062	20	21	0.6	0.6	0.4	5.5
Pennsylvania	224,510	149	..	0.7	0.7	1.0	5.8
Rhode Island	16,861	22§	22§	1.3	1.3	1.3	5.7
South Carolina	58,486	...	104	1.7	1.8	2.4	8.0
South Dakota	17,382	10	..	0.6	0.6	1.0	4.8
Tennessee	82,307	110	..	1.3	1.4	1.8	6.0
Texas	202,094	235	..	1.2	1.2	1.5	7.7
Utah	21,202	10	10	0.5	0.5	0.6	4.5
Vermont	9,051	4	4	0.4	0.4	1.0	5.7
Virginia	82,761	84	88	1.0	1.1	1.4	6.3
Washington	55,368	36	36	0.7	0.7	0.5	6.4
West Virginia	52,370	52	53	1.0	1.0	1.1	5.7
Wisconsin	82,736	47	50	0.6	0.6	1.1	5.0
Wyoming	7,359	3	..	0.4	0.4	1.1	5.7
UNITED STATES	3,553,551	3,291	3,482	0.93	0.98	1.2	6.2

A large majority of these 14 states have shown a decline from 1948 to 1949 in maternal mortality rates. Even the highest state rate for 1949 of 2.4 was about one-half the lowest state rate in 1933, a rate of 4.3 maternal deaths per 1,000 live births.

---

* Source: 1949 provisional data collected in correspondence with state health departments. Vital Statistics of the United States, 1948, Part II, National Office of Vital Statistics, Public Health Service, Federal Security Agency, Washington, 1950, pp. 94, 508. Vital Statistics Rates in the United States, 1900-1940, Bureau of the Census, U. S. Department of Commerce, Washington, 1940, p. 621.

† Rates in column 4 estimated by comparability ratio (0.95) for states not coding (..) deaths on sixth revision (column 2).

‡ Rates in column 5 estimated by comparability ratio (1.06) for states not coding (..) deaths on fifth revision (column 3).

§ 1948 data.

As the rates decline, uniformity in state rates is being approached more rapidly than might be expected. In 1933 the range from the lowest to the highest state rate was 7.2 maternal deaths per 1,000 live births, while in 1949 the range had been reduced to 2.0, a decline of 72 per cent. The present low national rate has been achieved by reductions in all the states and not just by reductions in the more favored states. It has been the result of the efforts in every section of the nation to reduce the number of maternal deaths from each cause.

UNSTABLE RATES

From the statistical viewpoint, the small number of maternal deaths in some states has created a new problem in analyzing state maternal mortality rates. Only four maternal deaths occurred in Nevada and in Vermont in 1949. One maternal death, more or less, in these states would have resulted in a 25 per cent change in the maternal mortality rate. The situation was even more unstable in the state of Wyoming, where only three maternal deaths occurred. One can reduce this instability of maternal mortality rates for some of the states by considering three year averages centered on the middle year. Presumably the three year average for 1950-1952 will be for the first future trio of years which would not involve the coding difficulties; that is, the sixth revision would be used in all three years.

TABLE 3.—*Regional Maternal Mortality Rates in the United States, 1949 (Deaths per 1,000 Live Births)**

Division †	Rate ‡
United States	1.0
New England	0.7
Middle Atlantic	0.8
East North Central	0.7
West North Central	0.7
South Atlantic	1.4
East South Central	1.8
West South Central	1.3
Mountain	1.0
Pacific	0.7

---

* Source: See table 2.

† New England (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut). Middle Atlantic (New York, New Jersey, Pennsylvania). East North Central (Ohio, Indiana, Illinois, Michigan, Wisconsin). West North Central (Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas). South Atlantic (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida). East South Central (Kentucky, Tennessee, Alabama, Mississippi). West South Central (Arkansas, Louisiana, Oklahoma, Texas). Mountain (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada). Pacific (Washington, Oregon, California).

‡ Based on fifth revision.

Another method would be the grouping of states into divisions such as the nine census divisions as shown in table 3. The highest rate, 1.8, occurs in the East South Central division; four divisions are tied at the lowest rate, 0.7. These rates indicate that the major problem in maternal mortality occurs in the South. The racial composition in the southern states may explain some of the excess of their rates above those of the other divisions. The major disadvantage in the use of nine divisions lies in the fact that maternal mortality should now be considered primarily a local problem and the health leaders in individual states (and large cities) will still be interested in comparisons between states rather than between groups of states. It should be noted that apparently no nation in the world has yet achieved a maternal mortality rate as low as 0.7, the rate for four divisions.

The maternal mortality rate is a crude rate rather than an age-specific rate. The rate, however, is closely associated with the age of the mother. Table 4 shows the age distributions of maternal deaths in 1933 and 1948 together with the age-specific maternal mortality rates. Table 5 shows the number and percentage distributions of all live births by the age of the mother. The safest childbearing age is still between 20 and 29 years. The age-specific mortality rates for the two age groups in this range differed much more in 1933 than they did in 1948. In 1933 the maternal mortality rate in the age group 20 to 24 years was 4.3 maternal deaths per 1,000 live births, 0.8 below the 5.1 rate for the age group 25 to 29 years; in 1948 these two rates were 0.7 and 0.9, respectively, a difference of only 0.2. The rates differed so greatly in 1933 that it is possible to say that only in the age group 20 to 24 years was the risk of maternal death relatively low. This age range in 1948 can be extended to include ages 20 to 29, or even ages 15 to 29. In 1948 a sharp difference in the risk of maternal death occurred beyond the age of 30. In 1933 the situation was somewhat different, with relatively high age-specific rates, even in the lower age brackets, and no sharp break occurring between age groups except above the age group 40 to 44. It seems obvious from the age-specific rates that the decided reduction in maternal mortality has been well distributed throughout the entire range of ages. The medical profession would like to make childbearing safer at all ages, but for the older mothers and for those under age 15 the problem will continue to be rather difficult.

TABLE 4.—*Maternal Deaths and Mortality Rates by Age of Mother in the United States, 1933, 1948 (Deaths per 1,000 Live Births)**

Age of Mother (in Years)	1933 Number (1)	1933 Rate (2)	1948 Number (3)	1948 Rate (4)	Decrease in Rate (5)
10-14	37	13.8	18	3.7	73%
15-19	1,441	5.7	435	1.0	82
20-24	2,616	4.3	834	0.7	83
25-29	2,753	5.1	869	0.9	83
30-34	2,578	7.3	844	1.5	80
35-39	2,324	10.6	772	2.7	75
40-44	952	12.5	316	4.2	66
45-49	132	17.8	31	6.1	66
50-54	3	24.6	2	12.3	50
Total †	12,885	6.2	4,122	1.2	81

---

* Source: Mortality Statistics, 1933, Bureau of the Census, U. S. Department of Commerce, Washington, 1936, p. 140. Vital Statistics of the United States, 1948, Part I, National Office of Vital Statistics, Public Health Service, Federal Security Agency, Washington, 1950, p. 156.

† Ages not stated included in total.

TABLE 5.—*Number of Live Births and Percentage of Total Live Births by Age of Mother in the United States, 1933, 1948**

Age of Mother (in Years)	1933 Number (1)	1933 Percentage (2)	1948 Number (3)	1948 Percentage (4)
Under 15	2,684	0.1	4,884	0.1
15-19	251,131	12.1	431,933	12.2
20-24	620,418	29.8	1,159,877	32.8
25-29	539,606	25.9	980,904	27.8
30-34	353,495	17.0	580,481	16.4
35-39	218,411	10.5	289,421	8.2
40-44	76,261	3.7	74,764	2.1
45-49	7,400	0.3	5,053	0.2
50 and over	122	0.0	162	0.0
Not stated	11,704	0.6	7,589	0.2
Total	2,081,232	100.0	3,535,068	100.0
Average age of mother	27.3 yr.		26.6 yr.	
Median age of mother	26.5		25.9	

---

* Source: Birth, Stillbirth, and Infant Mortality Statistics, 1933, Bureau of the Census, U. S. Department of Commerce, Washington, 1936, p. 111. Vital Statistics of the United States, 1948, Part II, National Office of Vital Statistics, Public Health Service, Federal Security Agency, Washington, 1950, p. 100.

The age of mothers has declined slightly between 1933 and 1948. (The total numbers of live births were 2,080,000 in 1933 and 3,535,000 in 1948.) If one considers only live births, in 1933 the mother's average (mean) age was 27.3 years; in 1948 the average was only 26.6 years. The median ages were 26.5 years and 25.9 years, respectively. The percentage distributions are shown in table 5. The most notable changes occurred in the age groups 20 to 24 and 25 to 29. In 1948 each of these two groups was about two or three percentage points above the values recorded in 1933. Conversely, the percentage of mothers over the age of 34 decreased from 15.1 per cent in 1933 to 10.7 per cent in 1948, a decrease which partially explains the reduction in the maternal mortality rate. This age factor was probably more than counterbalanced by the increase in the percentage of first births from 31.7 per cent to 35.6 per cent. The tremendous reduction from 6.2 in 1933 to 1.2 in 1948 (in the crude rate) is, therefore, primarily due to the reduction in the age-specific rates and is only mildly influenced by the counterbalancing changes in age and first births. This is obvious if one notes that no age-specific mortality rate in 1933 was even close to the 1.2 recorded in 1948 for the entire United States In fact, the risk of maternal death in the age group 45 to 49 in 1948 was less than in the age group 30 to 34 in 1933.

CAUSES IN 1933 AND 1948

Table 6 shows basic data for an analysis of maternal mortality by cause in 1933 and 1948. These two years were chosen because 1933 is the first year for which all the states were in both the death and birth registration area and 1948 was the last year for which data by cause are available; 1948 is also the last year for which the fifth revision of the International List was generally used. Deaths in 1933 were coded on the basis of the 1929 (the fourth) revision of the International List. Hence we found it necessary in preparing table 6 to make certain adjustments[5] to allow for the changes in coding which went into effect in 1939 with the fifth revision. Although the same groups of code numbers for maternal deaths, 140-150, were used in both the fourth and fifth revisions, there were differences in the exact types of causes encompassed by some of these 11 code numbers. This procedure required certain combinations of some of the code numbers (140-150) of the fifth revision in order to obtain comparable groupings of maternal deaths by cause in 1933 and 1948. The combinations of causes were made in terms of the fifth rather than the fourth revision (footnote to table 6).

Table 6 shows the number of maternal deaths, the maternal death rate and the percentage of deaths attributed to each of seven groups of causes for 1933 and 1948, together with the percentage decrease in rates from 1933 to 1948. The totals for all causes of maternal deaths are presented in row 1. The percentage of maternal deaths attributed to "abortion with mention of infection" (row 2) was 15.8 in 1933 and less than half that figure, 7.0, in 1948 (columns 3 and 6). "Abortion without mention of infection" (row 3) and "ectopic gestation" (row 4) were of nearly equal importance in both years. "Hemorrhage of pregnancy and of childbirth and puerperium" (row 5) increased in importance from 10.4 per cent in 1933 to 18.8 per cent in 1948. There was an increase of 3 per cent in "toxemias of pregnancy and puerperium" (row 6), the leading cause in 1948 and the second in 1933, between the two years. There was a decrease of 3 per cent in "other diseases and accidents of pregnancy; infection during childbirth and puerperium" (row 7), the leading cause in 1933 and the second in 1948. There was no change in "other accidents of childbirth; other and unspecified conditions of childbirth and puerperium" (row 8).

There was a decided decrease in the rates for each of the causes in the interval from 1933 to 1948. The percentage decreases (column 7) ranged from 66 for hemorrhage of pregnancy, childbirth and the puerperium (row 5) to 92 for abortion with mention of infection (row 2). This gives some support to the belief that the reduction in maternal deaths from hemorrhage is more difficult to achieve than reduction in maternal deaths from some of the other causes. Particularly striking is the reduction in the maternal mortality rate from abortion with mention of infection (row 2) from 0.98 (column 2) in 1933 to 0.08 (column 5) in 1948. The second largest percentage reduction in the rate was 84 for other diseases and accidents of pregnancy and infection during childbirth and the puerperium (row 7). Since accidents account for a small portion of the deaths from this group of causes, this decrease is primarily a decrease in deaths due to infections. These figures suggest that newer technics, more effective drugs and increased hospitalization are assisting in the reduction of maternal deaths due to infections.

TABLE 6.—*Number and Percentage of Total Maternal Deaths, Mortality Rates and Percentage Declines, by Cause; 1933 and 1948* *

	1933			1948			
Cause †	Number of Deaths (1)	Deaths per 1,000 Live Births (2)	Percentage of Total (3)	Number of Deaths (4)	Deaths per 1,000 Live Births (5)	Percentage of Total (6)	Percentage Decrease in Rates from 1933 to 1948 (7)
1. Diseases of pregnancy, childbirth and the puerperium (140-150)	12,885	6.19	100.0	4,122	1.17	100.0	81
2. Abortion with mention of infection (140)	2,037	0.98	15.8	289	0.08	7.0	92
3. Abortion without mention of infection (141)	640	0.31	5.0	207	0.06	5.0	81
4. Ectopic gestation (142)	610	0.29	4.7	243	0.07	5.9	76
5. Hemorrhage of pregnancy and of childbirth and puerperium (143, 146)	1,339	0.64	10.4	773	0.22	18.8	66
6. Toxemias of pregnancy and puerperium (144, 148)	3,055	1.47	23.7	1,102	0.31	26.7	79
7. Other diseases and accidents of pregnancy; infection during childbirth and puerperium (145, 147)	3,409	1.64	26.5	964	0.27	23.4	84
8. Other accidents of childbirth; other and unspecified conditions of childbirth and puerperium (149, 150)	1,795	0.86	13.9	544	0.16	13.2	81

* Source: Mortality Statistics, 1933, Bureau of the Census, U. S. Department of Commerce, Washington, 1936, p. 140. Vital Statistics of the United States, 1948, Part I, National Office of Vital Statistics, Public Health Service, Federal Security Agency, Washington, 1950, p. 156.

† The code numbers in parentheses are from the Manual of the International List of Causes of Death, fifth revision, Bureau of the Census, U. S. Department of Commerce, Washington, 1940. The code numbers 143, 146 from the 1938 revision correspond with the code number 144 from the 1929 revision. The code numbers 144, 148 from the 1938 revision correspond with the code numbers 146, 147 from the 1929 revision. The code numbers 145, 147 from the 1938 revision correspond with the code numbers 143, 145, 148 from the 1929 revision.

Since neither of us is a physician, we asked two well qualified obstetricians to comment on table 6 for the purpose of presenting an informed medical opinion of the reasons for the sharp declines in the seven groups of causes of maternal mortality. These two physicians prefer to remain anonymous. Their statement follows:

"In reviewing table 6 from the viewpoint of possible factors which could account for the reduction in mortality between 1933 and 1948 from the seven groups of causes, it is possible to summarize the factors under three definite categories: (1) care, that is, improved medical care of pregnant women, particularly intranatal and postnatal care in hospitals, which involves better training on the part of physicians and some improvements in methods which have been devised since 1933; (2) antibiotics and blood, that is, the development of antibiotics and the greater availability and use of blood, blood substitutes and blood derivatives since 1933, and (3) earlier diagnosis, that is, provision for better prenatal care for a larger percentage of mothers than in 1933 making it possible to recognize unfavorable conditions in a higher percentage of pregnant women than in 1933.

---

[5] Dunn, H. L., and Shackley, W.: Comparison of Cause-of-Death Assignments by the 1929 and 1938 Revisions of the International List: Deaths in the United States, 1940, Department of Commerce, Bureau of the Census, Vital Statistics-Special Reports **19:** 165 (June 14) 1944.

"We are listing below for each of the seven groups of causes in table 6 the one or more of these three factors primarily responsible for reductions in mortality and in the order of their importance.

Row 2 (140). Abortion with mention of infection: antibiotics and blood, plus care.
Row 3 (141). Abortion without mention of infection: care.
Row 4 (142). Ectopic gestation: early diagnosis; care (surgery); blood.
Row 5 (143, 146). Hemorrhage of pregnancy and of childbirth and puerperium: care; blood.
Row 6 (144, 148). Toxemias of pregnancy and puerperium: early diagnosis; care.
Row 7 (145, 147). Other diseases and accidents of pregnancy; infection during childbirth and puerperium: antibiotics; care.
Row 8 (149,150). Other accidents of childbirth; other and unspecified conditions of childbirth and puerperium: care.

"It will be noted that only the third factor, care, is given as a factor in the explanation of a sharp decline in maternal mortality from each of the seven groups of causes. Early diagnosis or prenatal care plays a significant role in ectopic gestation and toxemias of pregnancy and in assuring adequate size of the birth canal for safe delivery. Although educational programs for expectant mothers have doubtlessly been effective in reducing deaths from abortion with and without infection, the antibiotics and the availability of blood have been primarily responsible for the reduction in maternal deaths due to other diseases and accidents of pregnancy and infections during childbirth and the puerperium (row 7).

TABLE 7.—*Regional Maternal Mortality Rates in the United States by Cause, 1948 (Deaths per 1,000 Live Births)**

Cause †	United States (1)	New England (2)	Middle Atlantic (3)	East North Central (4)	West North Central (5)	South Atlantic (6)	East South Central (7)	West South Central (8)	Mountain (9)	Pacific (10)
1. Diseases of pregnancy, childbirth and the puerperium (140-150)	1.17	0.81	0.89	0.87	0.85	1.69	2.01	1.57	1.17	0.75
2. Abortion with mention of infection (140)	0.08	0.07	0.06	0.06	0.09	0.09	0.15	0.11	0.08	0.08
3. Abortion without mention of infection (141)	0.06	0.04	0.05	0.06	0.03	0.08	0.08	0.06	0.06	0.04
4. Ectopic gestation (142)	0.07	0.05	0.07	0.07	0.06	0.08	0.09	0.09	0.02	0.05
5. Hemorrhage of pregnancy (143) ‡	0.02	0.01	0.01	0.01	0.01	0.02	0.04	0.01	0.01	0.01
6. Toxemias of pregnancy (144) ‡	0.13	0.07	0.05	0.06	0.11	0.19	0.28	0.34	0.10	0.03
7. Other diseases and accidents of pregnancy (145) ‡	0.07	0.05	0.05	0.07	0.06	0.10	0.11	0.08	0.05	0.06
8. Hemorrhage of childbirth and the puerperium (146)	0.20	0.13	0.16	0.14	0.15	0.29	0.33	0.28	0.29	0.13
9. Infection during childbirth and the puerperium (147)	0.20	0.17	0.19	0.16	0.14	0.27	0.32	0.21	0.25	0.11
10. Puerperal toxemias (148)	0.18	0.11	0.11	0.11	0.12	0.35	0.35	0.22	0.16	0.11
11. Other accidents and specified conditions of childbirth (149)	0.09	0.05	0.09	0.09	0.04	0.10	0.11	0.08	0.09	0.09
12. Other and unspecified conditions of childbirth and the puerperium (150)	0.07	0.03	0.04	0.03	0.04	0.13	0.10	0.09	0.07	0.04

---

* Source: See table 6.
† The code numbers in parentheses are from the Manual of the International List of Causes of Death, fifth revision, Bureau of the Census, U. S. Department of Commerce, Washington, 1940.
‡ Death before delivery.

"It should also be noted that the two largest numbers of maternal deaths for 1933 and 1948 are found in rows 6 and 7. Ectopic gestation (row 4) and hemorrhage of pregnancy and of childbirth and puerperium (row 5) are the only causes of maternal deaths in 1948 which show a percentage decline in the rate (column 7) markedly less than the over-all decline of 81 per cent in the entire maternal mortality rate. It is in this area of the risk of childbearing that prenatal care may make its greatest contribution; but the physician will still play the primary role since it is only on his interpretation of findings that treatment will be given. If the patient will come early to the physician, ectopic gestation may be discovered early. If the patient is taught that any spotting or bleeding during pregnancy is potentially dangerous and that she should consult her physician at once, the mortality can be further reduced. If the patient is making the properly spaced visits to the physician so that a profile of her blood pressures, urine examinations and weight has accumulated on her chart, the physician can make the diagnosis of toxemia of pregnancy relatively early.

"In every one of these situations described by these seven groups of causes of maternal mortality, the physician is the key factor. The purpose of health education in all of its ramifications is, therefore, to get the patient to the physician early in pregnancy. In summary, this analysis of the reduction in the mortality rates by seven groups of causes indicates that the improved training and the increased skill of the physician are by far the most important factors."

The rates by cause for the nine geographic divisions are shown in table 7. (The difficulty faced in the compilation of table 6—translation of coding of the causes of death in the 1929 revision to the 1938 revision of the Manual of the International List of Causes of Death—does not arise in table 7, as the data are for 1948 only.) There is considerable variation in the rates by cause in the different divisions. The high maternal mortality rate for the East South Central division is apparently due to excessive numbers of deaths from toxemias of pregnancy (row 6) puerperal toxemias (row 10) hemorrhage of childbirth and the puerperium (row 8) and infection during childbirth and the puerperium (row 9). Physicians in the individual states are undoubtedly aware of the specific problems within their areas and continued reduction in these rates can be anticipated.

THE BASE—10,000 OR 1,000

Now that the maternal mortality rates for the 30 states and for the entire nation are less than one maternal death per thousand live births, there will undoubtedly be some tendency to make the rate base 10,000, even 100,000, live births instead of the traditional 1,000 live births. The rate based on 10,000 live births would be 10 instead of the 1.0 based on the traditional 1,000. The number of maternal deaths per 10,000 live (or total) births has rarely been used as the maternal mortality rate for a nation. Although the avoidance of decimals in rates may have some small merit, it seems to us that a change in the rate base from 1,000 to 10,000 live births would be unwarranted and would probably be misleading in any subsequent historical comparisons with earlier years. Revisions of the International List complicate historical comparisons; a change in the rate base would be another complication.

Since all maternal deaths are included in the number of maternal deaths whether the pregnancy was terminated by an abortion (miscarriage), a stillbirth or a live birth, there is, admittedly, some inconsistency in using only live births in the denominator. But it does not seem advisable at this time to add fetal deaths, which have been excluded heretofore, largely because of the lack of accurate and complete data.

In the whole range of vital statistics the maternal mortality rate is a peculiar rate. It is a crude rather than an age-specific rate. It has been customary to refer to the number of deaths —from all causes combined—per 1,000 persons at all ages as the crude death rate for the whole nation. The age distribution of mothers is limited and is not subject to such great changes as could and have occurred in the entire population. The maternal mortality rate is, therefore, not as "crude" as the crude death rate for the entire population. Expressing the maternal mortality rate as the number of deaths per 1,000 live births has, therefore, been consistent with the practice in regard to the crude death rate for the entire population.

The universe for maternal deaths is not the entire population but the number of women who are delivered during the course of the calendar year. It is customary to use 100,000 persons as the rate base in the computation of the mortality rate from a single cause or a group of causes—pneumonia or heart diseases. But this number of persons, the exposure group, would have no particular bearing on the problem of measuring maternal deaths (the puerperal rate). Even if the rate base were 100,000 females or 100,000 females at the childbearing ages, the resulting rate for a particular calendar year would be rather meaningless as a measure of probability. There would be, therefore, some slight precedent for using 100,000 live births in the computation of future national maternal mortality rates but little, if any, for using 10,000.

The disadvantage of making changes in the methods or data used in computing maternal mortality rates seem to outweigh the advantages, notably the elimination of the awkwardness of a second decimal place in the rate.

COMMENT

It must be remembered that maternal mortality rates are influenced by a variety of factors which vary from state to state. The inherent problems in certain areas of the United States are far more complicated than those in other areas. For this reason it is entirely possible that the records made by some of these states still having higher maternal mortality rates may represent an accomplishment in social progress even greater than that recorded by states reporting the lower maternal mortality figures. Nevertheless, we can see that local authorities, well able to analyze the situation in their own community, are presented with a tremendous opportunity for community service in those states where maternal mortality still maintains a relatively important position in the health picture.

SUMMARY

1. For the first time in history a large nation apparently had so few maternal deaths in relation to the number of live births in 1949 that the maternal mortality rate was below one.

2. In computing this estimate of the maternal mortality rate for the United States in 1949, it was estimated that the number of maternal deaths under the fifth revision of the International List was approximately 6 per cent greater than under the sixth revision.

3. A comparison of the maternal deaths by cause in 1933 and 1948 shows somewhat similar rates of decline except for hemorrhage of pregnancy, childbirth and the puerperium. The authors believe it would be inadvisable to shift from a base of 1,000 live births to a base of 10,000 live births in order to avoid decimal values now that the mortality rate has reached such low levels. Finally, it is good to know that the chances of an expectant mother surviving pregnancy, childbirth and the puerperium in the United States and in a few small countries are now 999 out of 1,000. The risk of dying in childbirth is now approximately one seventh of what it was a generation ago.

4. But we would be misinterpreting the nature of medical progress if, at this time, we did not call attention to the other side of the story. This triumphant conquest of the causes of maternal mortality will bring new challenges to future medical progress. It is to be earnestly hoped that when these mothers become, 20 to 50 years thereafter, potential candidates for the "older" causes of death that considerable gains will have been made in reducing the toll from these older causes. It is the disturbing premise of the practice of medicine that the physician cannot win. He can only raise the average age at death and increase the proportion of people who succumb to the older causes of death. But in providing more years of useful life to expectant mothers, the members of the medical profession and their auxiliary aids have contributed greatly to human and social progress in an era of wars and threats of war.

Medical Motion Pictures

A Place in the Sun. 16 mm., color, sound, showing time 25 minutes. Prepared by Peter Cohen, M.D., Supervisor, Cerebral Palsy Program for Northern California, University of California School of Medicine. Produced in 1950 by Jonathan Musser for the Junior League of San Francisco. Procurable on loan from the Junior League of San Francisco, Inc., Mark Hopkins Hotel, San Francisco.

This film depicts the cerebral palsy program in California. It shows the special examinations that are done in a cerebral palsy clinic to properly evaluate the child with cerebral palsy. It also goes on to show the various aspects of the program in a residence school for affected children, indicating the need for consideration of the whole child and the family. It demonstrates the activities in such a school, that is, physical, occupational and speech therapy, as well as the educational program. It also indicates how the program can be continued in the child's own community.

The presentation is free from unction and overacting. It shows follow-up and home care with the parents, to aid in the transition from the residential school to the home. The emphasis—an integrated one—on a combined therapy, including education and psychological evaluation, is especially good. Professional guidance is evident throughout, and the film gives evidence of authoritative, technical advice and emphasizes the importance of medical supervision.

Although this film will probably be most helpful in gaining the support of various lay groups for schools of the sort described, it has informative and inspirational value and could be shown profitably to almost any mature audience. The nonprofessional person will gain a real appreciation of the difficulties presented by these patients. Nurses, medical students and technicians will also be interested.

The narration is simple. There is no pretense of the film being a "high-pressured" production, but rather informative in a natural, easy manner. The photography is fair to good.

Diagnosis of Uterine Malignancies: 16 mm., sound, color, showing time 12 minutes. Prepared by Dr. Louis Scheffey, Dr. Theodore Eberhard and Dr. Warren Lang, Department of Obstetrics and Gynecology, Jefferson Medical College, Philadelphia. Produced in 1950 by the Jefferson Medical College through a grant for cancer teaching from the National Cancer Institute. Procurable on loan from the American Cancer Society or Jefferson Medical College, 1025 Walnut Street, Philadelphia 7.

The purpose of this motion picture, according to the authors, is to accent the importance of pelvic examination for the detection of pelvic cancer and to illustrate the proper technics, particularly those usable in the office of the physician. The important aspects and the special technical maneuvers for a pelvic examination are discussed and demonstrated by a physician doing a complete pelvic examination. The technic in taking a smear for a Papanicolaou study is then shown. The performance of a curettement of the uterine cavity and two circular biopsies of the cervix are also shown.

The value of rectal examination for determination of the extent of malignant infiltration, or detection of infiltration which might occur in the presence of a benign-looking external cervix, was left out entirely. Although the smear specimen for cytological examination was excellent, the discussion of the preparation was poor. The thinning out of the specimen and the fixation in alcohol and ether were not mentioned. The Papanicolaou smear procedure should precede the pelvic examination, as the use of lubricants in making this examination tends to wipe out the cancerous cells. The importance of endocervical curettage was entirely omitted. The importance of the finding of induration and friability of tissue, detected on palpation, and the use of a probe are also missing. Although the Schiller tincture test is included, the procedure and preparation are not carried out according to accepted technics. There should be included a reason for the performance of conization with a sharp scalpel in preference to diathermy. Induction and withdrawal of the tenaculum to avoid pinching and pulling constitute good advice.

If this film was better organized and more complete, it would have been a valuable aid in teaching general practitioners and medical students the importance of proper examination of the pelvis to detect early cancer. The photography is good; however the entire production is poorly organized.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Powers of State Board of Health in Licensing Chiropractic Hospitals.—This was an action to review an order of the state board of health revoking the plaintiff's license to operate a chiropractic sanitarium. From a judgment in the trial court sustaining the board's action, the plaintiff appealed to the Supreme Court of Colorado.

In 1943 the state board of health issued to the plaintiff a temporary provisional license to operate a sanitarium with the following conditions: 1. Maternity cases shall not be received. 2. Surgery will not be performed. 3. Drugs or medicines shall not be administered. 4. No contagious or infectious cases will be admitted or treated. 5. The name "hospital" shall not be used in describing or designating the institution. In 1946, on notice and hearing, the defendant ordered and adjudged that this license be revoked. The present case is to review that order.

The court assumed at the outset that the scope of review was limited to the inquiry as to whether the board's jurisdiction has been exceeded, its discretion abused or its authority regularly pursued. The practice of chiropractic, said the court, is recognized and authorized by law. We must therefore accept such practice as a lawful occupation and as in the public interest. It may not be arbitrarily limited or discriminated against, and its advocates may lawfully erect and operate buildings and facilities for the treatment, according to its tenets, of patients seeking its aid, subject only to the limitations set out in the law and to reasonable regulations under the police power. Such regulations must, however, bear relation to the public health or welfare and must apply to all persons alike. The sole authority for the board in the issuance and revocation of licenses is contained in the state statute. This statute provides, so far as we are here concerned, that it shall be unlawful to open or maintain any hospital or other institution for the treatment or care of the sick or injured without first having obtained a license therefor from the state board of health; that the board "shall issue licenses to such applicants furnishing satisfactory evidence of fitness to conduct and maintain such institution in accordance with the provisions of this act and the rules and regulations adopted by such board, and such license shall be signed by the president and attested by the secretary of said board and have the seal thereof affixed thereto" and that licenses may be refused or revoked for failure to comply with the requirements of this act and of the rules and regulations of the board. This statute, said the Supreme Court, provides only for the issuance of permanent licenses, which shall continue until revoked.

It is at once apparent, said the Supreme Court, that the instrument issued to the plaintiff was in no respect a compliance with the statute under which the board must act. By its very terms it was not a license as authorized by the statute but an unauthorized, temporary provisional permit issued "pending consideration of an application for a permanent license." It was not signed by the president of the board nor even issued under its apparent authority, it was not attested by the secretary of the board, it did not bear its seal and most important of all it was not conditioned on a compliance with "the provisions of this act and the rules and regulations adopted by such board." Rather it was conditioned on five stated prohibitions no one of which was either a provision of the statute or properly or in fact a rule or regulation of the board. These prohibitions, the court continued, bear no relation to the sanitary conditions or the adequacy of equipment of the sanitarium, no relation to the training, competence or qualification of its personnel and no relation to the public health, morals, welfare or security. They are not set up as rules or standards for chiropractic sanitariums generally but are arbitrary and discriminatory restrictions against the applicant alone.

There is not a sentence in the issued license which follows the statute on which it is based. Instead of pursuing its statutory authority, the state board of health attempted to usurp the function of the legislature and set up a law of its own. However, the Supreme Court continued, the very fact that the board issued authority for the opening and operating of the sanitarium constitutes a finding of proper application for a license and satisfactory evidence of fitness to conduct and maintain the sanitarium. Such finding was a legal prerogative of the board and on such finding the board was legally obligated to issue a proper license in place of the one actually issued. Assuming that as done which should have been done, to wit the actual issuance of a proper license, and that such license was subject to revocation as provided by the statute, the revocation here ordered was of a certainty not in regular pursuit of authority. In the notice of hearing to revoke license upon which the hearing was based plaintiff was notified that the grounds of the revocation charged were that surgery had been performed, that drugs and medicines had been administered, that contagious and infectious diseases had been admitted and treated and that the name "hospital" had been used in describing or designating the institution. There was no charge that the licensee authorized or by negligence permitted surgery to be performed or drugs or medicine to be administered by persons or under conditions prohibited by law or regulation or that licensee violated any law or regulation in the admittance or segregation or treatment of contagious, infectious diseases or in the use of the word "hospital." The violation of void conditions could not justify revocation.

Accordingly, the Supreme Court held that the attempted revocation of license by the board was void and that the board should have issued a license in accordance with the law under which it acted. The judgment in favor of the board was therefore reversed.—*Spears Free Clinic & Hospital for Poor Children, Inc. v. State Board of Health, 220 P. (2d) 872 (Colo., 1950).*

Malpractice: Standards Applicable to Drugless Healers.—This was an action for damages alleged to have arisen out of the sanipractic treatment given to the plaintiff by the defendant. From a judgment in the trial court in favor of the defendant notwithstanding a verdict for the plaintiff, the plaintiff appealed to the Supreme Court of Washington.

The plaintiff had been informed by her physician that she had diabetes. She was averse to the administration of insulin, however, so she consulted the defendant, who informed her that by his method of treatment of diabetes neither insulin nor other drugs were used. There is evidence in the record from which the jury could have concluded that the plaintiff lost weight, had intermittent swelling of the ankles, a numbness of the limbs, impediment in vision and general physical weakness and had become irritable. After taking 41 treatments the plaintiff became alarmed, ceased taking them and entered a hospital. After a period of hospitalization and insulin therapy, the condition of the plaintiff improved to such an extent as to enable her to live a comparatively normal life.

We gather from the remarks of the trial judge, said the Supreme Court, that he considered a licensed sanipractor when operating within his school of treatment should be governed by the same rules applicable to a physician. The analogy does not apply to a drugless healer because he is restricted by statute to that which is permitted under the license issued to him. This is not a case where it can be said that the defendant was negligent in the performance of that which he undertook to accomplish. He knew the plaintiff had diabetes. It was not what he prescribed or instructed the plaintiff to do that created a foundation for legal liability. His fault, said the Supreme Court, lay in the fact that his method of treatment did not supply the pancreas deficiency necessary to retard the progress of the ailment with which the plaintiff was suffering. There was evidence before the jury sufficient to support a finding that the defendant knew or should have known, or discovered, that his method of treatment for diabetes was not of a character productive of reasonable success. When such a situation arises, concluded the Supreme Court, it then becomes the duty of a drugless healer to cease and desist from treating the patient and to advise the patient to seek other relief. Accordingly the judgment of the trial court in favor of the defendant was reversed and judgment in favor of the plaintiff was ordered.—*Carney et ux. v. Lydon et ux., 220 P. (2d) 894 (Wash., 1950).*

CURRENT MEDICAL LITERATURE

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

40:325-484 (Sept.) 1950

Myocardial Infarction Simulating Angina Pectoris. I. Stein.—p. 325.

*Myocarditis in Poliomyelitis. D. M. Spain, V. A. Bradess and V. Parsonnet —p. 336.

*Active Rheumatic Carditis in Patients over 40 Years of Age. F. Wroblewski and W. J. Messinger.—p. 345.

Spontaneous Rupture of Papillary Muscle: Clinical Syndrome. H. Schwartz and F. R. Canelli.—p. 354.

*Air Travel and the Cardiac Patient: Analysis of Relevant Experimental and Empirical Data. S. H. May.—p. 363.

Effect of L-Nor-Epinephrine upon Corpuscular Volume and Hematocrit. G. C. Sutton, A. Kappert, A. Reale and others.—p. 369.

Action of Nor-Epinephrine and of Epinephrine on Ventricular Rate of Heart Block. M. H. Nathanson and H. Miller.—p. 374.

Prolonged Study of Oral Veratrum Viride in Treatment of Essential Hypertension. J. D. McNair, G. C. Griffith and S. R. Elek.—p. 382.

Abnormal Ballistocardiographic Patterns in Cardiovascular Disease as Recorded with Low-Frequency, Critically-Damped Ballistocardiograph. J. A. L. Mathers, J. L. Nickerson, T. C. Fleming and M. C. Patterson. —p. 390.

Experimental Cholesterol Arteriosclerosis: II. Changes Produced in Golden Hamsters and in Guinea Pigs. R. Altschul.—p. 401.

Electrokymographic Studies of Abnormal Left Ventricular Pulsations. J. B. Schwedel, P. Samet and H. Mednick.—p. 410.

Electrokymographic Studies of Relation Between Electrical and Mechanical Events of Cardiac Cycle in Wolff-Parkinson-White Syndrome. P. Samet, H. Mednick and J. B. Schwedel.—p. 430.

Prominent R Wave and Shallow S Wave in Lead V_1 as Result of Lateral Myocardial Infarction. L. Levy II, H. J. Jacobs, H. P. Chastant and H. B. Strauss.—p. 447.

Electrocardiographic Diagnosis of Combined Left and Right Ventricular Strain. R. H. Rosenman, S. Krause, W. Hwang and L. N. Katz. —p. 453.

Explanation of Wolff-Parkinson-White Syndrome. B. Kisch.—p. 466.

Myocarditis in Poliomyelitis.—Spain and his associates point out that little is known about the incidence and degree of involvement of the myocardium during poliomyelitis and that the clinical significance of this myocarditis is not too well established. They studied the hearts of 14 of 16 patients who died from poliomyelitis at Grasslands Hospital in Westchester County during 1947 to 1949, inclusive. Sections of myocardium were taken from all parts of the heart. Spinal cord and brain were examined in all cases. Microscopic changes of myocarditis were present in 12 of the 14 patients. The alterations varied considerably from one case to another and in the same case from section to section. The histological findings correlated closely with the duration of illness, but the severity of myocarditis could not be correlated with the clinical type of poliomyelitis. The heart in which there were obvious gross findings of myocardial involvement was that of the only patient who during life showed a possible sign of myocarditis. He had a rapid pulse, despite the fact that his temperature had dropped to near normal. The terminal episode was also suggestive of some degree of cardiac failure. The authors believe that myocarditis is etiologically related to the poliomyelitis group of viruses, because of the close correlation between the histological picture in the myocardium and the duration of illness and the presence of focal myocardial necrosis and nerve lesions in the myocardium. They cite other reasons for favoring the etiological role of the poliomyelitis virus but admit that the virus has never been isolated from the myocardium. They suggest that the myocardium be studied in experimentally produced poliomyelitis in monkeys and that isolation of the virus from the myocardium be tried.

Active Rheumatic Carditis in Patients over 40 Years of Age.—According to Wroblewski and Messinger, active rheumatic heart disease is generally unsuspected in patients over 40 years of age, unless the manifestations are classic. This disease was frequently seen in older patients at the hospital with which the authors are connected. These patients are, however, highly selected, since they were admitted only after protracted illness in general hospitals. The diagnosis of rheumatic heart disease had been made previously in only a few of these. The 34 cases with histological evidence of active rheumatic heart disease on which this report is based were selected from 1,930 autopsy protocols. The clinical records of these patients were studied to determine whether cardiac activity noted in the histological sections resulted in clinical manifestations and whether patients over 40 years of age who had postmortem histological evidence of rheumatic carditis, differed in clinical manifestations from patients in the younger age groups. The possibility of rheumatic heart disease was considered at one time or another during hospitalization in 12 of the 34 cases, while activity of the rheumatic process was suspected in seven of these 12 cases. Evidently, many of these clinical impressions were not sustained. A past history of rheumatic fever or rheumatic-like illness was obtained from 14 patients. The physical findings alone suggested heart disease in 27 cases. Of the 32 cases in which complete clinical data were available, 10 patients exhibited classic or obvious signs of clinical activity; 16 exhibited adequate signs, and in six, minimal or no manifestations were apparent. If the diagnosis of active rheumatic carditis had been considered seriously in spite of the age of the patient, a correct diagnosis could have been arrived at in most of them. Active rheumatic carditis should be considered more often in older patients. Unexplained fever and unusual responses to digitalis may be clues to such a diagnosis.

Air Travel and the Cardiac Patient.—According to May, there exist physiological, experimental and empirical data which suggest the existence of a factor in the human body which increases tolerance to oxygen want in the aged and in those with cardiac disease. It seems likely that the alerted adjustor mechanism of the carotid and the aortic nerve structures plays a greater role in the emergency of oxygen want. Some of the mechanisms which participate in the adjustment of the body to high altitude, besides the well known acclimatization by polycythemia to altitude, are, according to Wiggers, increased cardiac output and vital capacity, a slight shift of the pH of the blood and an increased capacity of the blood to fix and use oxygen. There is also evidence that the coronary vessels dilate. The possibility of testing patients with cardiac disease under low oxygen pressures is regarded by the author as a strong argument for the high altitude tolerance of these patients. The collective experience of the airlines as well as the crucial experiment of the air evacuation of the sick and wounded from combat zones during the recent war seem to corroborate this view. The author presents three case histories to illustrate that patients with heart ailments tolerate air travel quite well and concludes that there is no valid objection to travel in modern air vehicles for patients with heart disease.

Am. Journal of Digestive Diseases, Fort Wayne, Ind.

17:293-322 (Sept.) 1950

Polyamine Formaldehyde Resin: IV. Clinical Evaluation in Treatment of Duodenal Ulcer. H. L. Segal, H. A. Friedman, E. E. Ellis and J. S. Watson Jr.—p. 293.
Noxious Antral Remnant in Treatment of Peptic Ulcer of Duodenum. F. G. Connell.—p. 296.
Induction of Normal Defecation Reflex by Distention of Rectal Stump Following Removal of Recto Sigmoid. I. H. Einsel and T. H. Einsel. —p. 298.
Effect of Cytochrome C and Sodium Succinate in Cases of Chronic Hepatic Disease. S. Zelman.—p. 300.
Takata-Ara Reaction in Differential Diagnosis and Prognosis of Jaundice. B. Shulman, F. Steigmann and E. W. Stevens.—p. 305.
Pseudoagglutinative Effect of Equine Gastric Mucin on Human Erythrocytes and Suggestive Evidence of Anti-Hr Component Therein. R. D. Barnard and R. G. Coren.—p. 311.
Fifteen Years' Study of Occult Lymphocytosis in 280 Hypercholesterolemia Patients. E. Tuttle.—p. 314.

American Journal of Tropical Medicine, Baltimore

30:599-802 (Sept.) 1950. **Partial Index**

Physiological Disposition of Diodoquin, Vioform, and Chiniofon in Rabbit as Determined with Radioiodine. W. T. Haskins, G. W. Luttermoser and F. J. Brady.—p. 599.
Effectiveness of Bismuthoxy *p*-N-Glycolylarsanilate (Milibis®) in Treatment of Intestinal Amebiasis. D. A. Berberian, E. W. Dennis and C. A. Pipkin.—p. 613.
Trial of Enteric-Coated Camoquin in Intestinal Amebiasis. M. T. Hoekenga and Q. Gonzalo Maximo.—p. 625.
Effect of Rice Powder on Growth of Cultures of Endamoeba Histolytica. C. L. Spingarn and M. H. Edelman.—p. 629.
Effect of X-Ray upon Growth and Infectivity of Endamoeba Histolytica. E. H. Sadun, J. N. Ané, F. W. Fuller and R. Lewis.—p. 635.
Simplified Casein Hydrolysate-Serum Medium for Cultivation of Trichomonas Vaginalis. J. J. Lash.—p. 641.
Laboratory Infection with Leishmania Donovani: Case Report. L. L. Terry, J. L. Lewis Jr. and S. M. Sessoms.—p. 643.
Observations on Recession of Malaria in Area of Southwestern Georgia. M. H. Goodwin Jr.—p. 651.
Heretofore Unreported Agglutinable Human Blood Factor and Its Possible Relationship to Blackwater Fever. D. C. A. Butts.—p. 663.
*Progress in Treatment of Trachoma with Chloromycetin (Chloramphenicol). M. J. Pijoan, E. H. Payne and J. Duncan.—p. 677.
Observations on Experimental Transmission of Japanese Encephalitis by Mosquitoes. H. S. Hurlbut and J. I. Thomas.—p. 683.
Japanese B Encephalitis: Complete Review of Experience on Okinawa 1945-1949. W. D. Tigertt, W. M. Hammon, T. O. Berge and others. —p. 689.
Geographical Distribution of Immunity to Yellow Fever Among Primates of Brazil. H. W. Kumm and H. W. Laemmert Jr.—p. 733.
Study of Concentration of Yellow Fever Virus which Will Infect Certain Species of Aedes Mosquitoes. H. W. Kumm and H. W. Laemmert Jr. —p. 749.
Diabetes Mellitus and Pylephlebitic Abscess of Liver Resulting from Schistosoma Mansoni Infestation. M. Seife and J. R. Lisa.—p. 769.
Seventeen Cases of Poisoning Due to Ingestion of Eel, Gymnothorax Flavimarginatus. C. T. Khlentzos.—p. 785.

Chloramphenicol in Treatment of Trachoma.—Pijoan and his co-workers report on cases of trachoma characterized by an acute onset of conjunctival inflammation, dense infiltration and papillary hypertrophy. In the early stages' there existed in these patients a superficial inflammation of the cornea, particularly of the upper limbus region, some swelling of the lids and increased lacrimation. There was a follicular hypertrophy of the upper tarsal conjunctiva. Pannus was noted in all cases, and capillary loops were observed within the matrix of this structure. Corneal and conjunctival cicatrization was present in the later stages, and early deformities, such as cicatricial entropion were noted in some of the patients. Eight children and six adults were treated with chloramphenicol. The diagnosis was based on the slit lamp and biomicroscope examination, in addition to bacteriologic and physical examinations. Chloramphenicol was administered orally, 3 Gm. being given in divided doses at three-hour intervals for the first 24 hours, after which 250 mg. were given every three hours for at least four days. Most of the photophobia and lacrimation was materially reduced within 24 hours, and there was a reduction of approximately 85 per cent in opacities and inflammation within the next few days. The patients were hospitalized with bed rest in partly darkened rooms for four days and were on a regular diet. They were protected from dust and wind. Examination at the termination of treatment showed only one patient in whom further therapy appeared necessary. The authors feel that the benefits will probably be permanent, because there was no evidence of relapse over a period of three months.

Annals of Surgery, Philadelphia

132:161-320 (Aug.) 1950

*Cervical Arteriovenous Anastomosis in Treatment of Mental Retardation, Convulsive Disorders and Cerebral Spasticity. C. F. McKhann, W. D. Belnap and C. S. Beck.—p. 162.
Consideration of Bronchiogenic Carcinoma. E. A. Graham.—p. 176.
*Role of Adrenal Cortex in Postoperative Retention of Salt and Water. J. D. Hardy.—p. 189.
Complete Scalp Avulsion: Rational Treatment. Report of Cases: Experimental Basis for Production of Free, Hair Bearing Grafts from Avulsed Scalp Itself. M. P. Osborne.—p. 198.
Arterial Aneurysms. B. McSwain and W. Diveley.—p. 214.
Sterilization of the Intestinal Tract by Antibiotics and Supplemental Agents. E. J. Pulaski, J. F. Connell Jr. and S. F. Seeley.—p. 225.
Penicillin and Streptomycin in Treatment of Experimental Escherichia Coli Peritoneal Infection. H. W. Bloemers and J. E. Kempf.—p. 235.
Conservative Treatment of Salpingitis Complicating Myomata Uteri. H. C. Falk, C. Mandelbaum and G. Blinick.—p. 247.
Contribution to Surgical Significance of Aberrant Hepatic Ducts. V. Rapant and J. Hromada.—p. 253.
Thrombophlebitis Migrans: Case Report with Autopsy and Review of Literature. J. M. Sullivan and B. R. Walske.—p. 260.
Calcified Intracerebral Hematoma: Case Report and Review of Literature. F. W. Lusignan and G. O. Cross.—p. 268.
Tri-Locular Gastric Diverticulum Treated by Surgical Extirpation Through Thoraco-Abdominal Incision. M. L. Michel and W. T. Williams.—p. 273.
Perforation of Gallbladder into Free Peritoneal Cavity with Spontaneous Healing. V. Moragues and T. R. Simon.—p. 282.
Cystic Lymphangiomata of Greater Omentum. A. J. Beller and R. L. Nach.—p. 287.
Cholecysto-Choledochal Fistula: Unusual Form of Internal Biliary Fistula. A. Behrend and M. L. Cullen.—p. 297.
Plasmacytoma of Thyroid Gland. F. E. Barton and D. A. Farmer. —p. 304.
Catheterization of Portal Vein in Man Following Porto-Caval Anastomosis. C. T. Dotter, M. A. Payne and W. O'Sullivan.—p. 310.
Ainhum (Dactylolysis Spontanea): Review of 10 Cases. D. C. Hucherson.—p. 312.

Cervical Arteriovenous Anastomosis for Mental Retardation.—McKhann and his associates describe an operation to increase the arterial blood supply to the cortex of the cerebrum. This involves the production of an arteriovenous anastomosis between one of the carotid arteries and the internal jugular vein, with ligation of the jugular vein proximad to the anastomosis. It was thought that there might be in some conditions viable brain cells enmeshed in a gliotic process and that the function of these cells could be improved by increasing the blood supply to the brain. The operation was performed in 125 patients. Recently, the external carotid artery was used rather than the common carotid artery. The original common carotid-internal jugular anastomosis was done in 52 children and 26 adults, while the other patients were subjected to the later procedure. Children with developmental anomalies were excluded from this treatment, because it was reasoned that the operation could be successful only if there had been normal development with subsequent injury. Children with birth injury, birth anoxia, encephalitis, kernicterus, cortical atrophy secondary to subdural hemorrhage and lesions from meningitis and from hyperpyrexia were selected for treatment. The adults operated on had convulsive disorders secondary to organic change, idiopathic epilepsy, arteriosclerosis, cerebrovascular complications, sequelae of cerebral emboli and thrombosis not secondary to arterioslerosis. It was found that the carotid-jugular anastomosis increases cerebral blood flow and that it may bring about a revascularization of the brain. Anastomosis between the external carotid artery and the internal jugular vein, within limits of a 3.5 to 4.0 mm. stoma, proved to be reasonably safe. About 35 per cent of the children and a small percentage of adults have shown postoperative benefit. The procedure is still in the trial stage and should be considered as representing a new approach to the problem rather than an aceptable and complete solution.

Adrenal Cortex and Postoperative Retention of Salt and Water.—Hardy points out that patients subjected to major surgical procedures frequently retain significant amounts of infused sodium chloride and glucose solutions during the immediate postoperative period. He felt that this retention of salt and water might be related to the activity of the adrenal cortex after the trauma of anesthesia and operation. In the absence of facilities for the fractionation of urinary corticoids, he selected the total eosinophil count as a measure of adrenocortical function. Infusions of 2,000 cc. of 5 per cent glucose in water and of 1,000 cc of 5 per cent glucose in 0 85 per cent sodium chloride solution were administered daily for three days following operation in five patients who had undergone partial colon resection, one a vagotomy and one a hemorrhoidectomy The urinary volume and the total output (urine plus gastrointestinal suction) were correlated with the total eosinophil counts, and it was found that the curves could be almost superimposed In a second group of three patients, one of whom underwent gastric resection, one resection of the right colon and one combined abdominoperineal resection 750 cc of a 5 per cent dextrose solution were administered in each of the first four six-hour periods postoperatively, and rates of urinary excretion of water, sodium, potassium and chloride were measured and correlated with the total eosinophil counts in each period When adrenocortical function was maximal, as indicated by a profound fall in the total eosinophil count, there was a decreased rate of excretion of sodium, water and chloride, with an increased rate of excretion of potassium The rates of excretion were identical with results obtained following the administration of desoxycorticosterone The author discusses a number of factors which might affect the postoperative excretion of salt and water The vigor of eosinophil response to trauma may be in some way related to the vitality of the patient He draws attention to the diminished volume of fluids secreted into the intestinal tract during the first 24 hours postoperatively This may represent another manifestation of a profound generalized derangement in the membrane permeability

Blood, New York

5:793-886 (Sept) 1950

*Hereditary Spherocytic Anemia in the Negro C E Butterworth Jr, R R Kracke and W H Riser Jr —p *793*
Severe Mediterranean Anemia (Cooley s Anemia) in a Chinese Child Q B DeMarsh —p *798*
Effect of Racial Mixtures upon Erythrocytic Sickling J H Hodges —p 804
Familial Nonspherocytic Hemolytic Anemia E Kaplan and W W Zuelzer —p 811
*Paroxysmal Nocturnal Hemoglobinuria, Mechanism of Hemolysis and Its Relation to Coagulation Mechanism W H Crosby and W Dameshek —p *822*
Paroxysmal Nocturnal Hemoglobinuria, Specific Test for Disease Based on Ability of Thrombin to Activate the Hemolytic Factor W H Crosby —p 843
Microscopic and Histochemical Studies on Auer Bodies in Leukemic Cells G A Ackerman —p 847
Beta Glucuronidase of Human White Blood Cells R J Rossiter and E Wong —p 864
Efficiency of an Iron Molybdenum Preparation as Evaluated by Means of Iron Absorption Tests S Gullberg and B Vahlquist —p 871
Cause of Sexual Differences in Erythrocyte, Hemoglobin and Serum Iron Levels in *Human Adults* B *Vahlquist —p 874*

Hereditary Spherocytic Anemia in the Negro.—Butterworth and co workers studied 12 persons representing four generations of a Negro family, two of whom, both women, appeared to have typical cases of hereditary spherocytic anemia Splenectomy was performed on one The blood values returned to normal, and the patient remained completely well The second patient never had a hemolytic crisis, although reticulocytosis and the large size of the spleen indicated that the disease was active Five persons were normal The remaining five had microspherocytosis and an increased red cell fragility but were completely asymptomatic and appeared in good health They were considered carriers of hereditary spherocytic anemia This disease has always been thought to be transmitted as a simple *mendelian dominant factor* With regard to the genetic mechanism involved the presence of three recognizable categories—patients, carriers and normals—indicates at once that a simple single gene, dominant recessive relation is not the explanation The suggestion is made that spherocytic anemia in the Negro is due to multiple factors The high incidence of the disease in females is again pointed out

Paroxysmal Nocturnal Hemoglobinuria—Crosby and Dameshek studied the mechanics of hemolysis in the blood of six patients with paroxysmal nocturnal hemoglobinuria, a rare hemolytic anemia of obscure origin, characterized by a defect of the erythrocytes, which makes them susceptible to hemolysis by a normal plasma or serum factor Results showed that the hemolytic reaction does not involve a complement antibody reaction, but is rather an enzyme-like reaction that is related to the coagulation mechanism of the blood Evidence suggests that the heat-labile hemolytic factor in paroxysmal nocturnal hemoglobinuria if not identical with the serum coagulation accelerator, resembles it in many aspects The hemolytic factor is present in plasma as an inert precursor which is activated by thrombin Bishydroxycoumarin (dicumarol®) inhibited hemolysis in a patient with paroxysmal nocturnal hemoglobinuria Therapeutically, the drug was disappointing It did not reduce the hemolytic precursor and did *not prevent* hemolytic crises, but its use was not dangerous, suggesting that it may be of value during crises of this disease when thrombosis threatens Dilute heparin facilitated the activation of the hemolytic enzyme by thrombin The use of heparin in paroxysmal nocturnal hemoglobinuria may be dangerous Lysis of paroxysmal nocturnal hemoglobinuria of cells by a substance related to the clotting mechanism offers a new approach to the study of the coagulation problem

Electroencephalography and Clin. Neurophys., Boston

2:243-372 (Aug) 1950 **Partial Index**

Homeostasis of Cerebral Excitability H Davis —p *243*
Combined Photic and Metrazol Activation of Brain H Gastaut —p 249
Experiences with Combined Stroboscopic and Metrazol Activation of EEG in Epileptics and in Patients Suspected of Having Seizures (Gastaut Technique) R S Schwab and J A Abbott —p *262*
Experimental Study of Mechanism of Photic Activation in Idiopathic Epilepsy H Gastaut and J Hunter —p *263*
Electroencephalogram During Hyperventilation *Followed by Apnoea* Preliminary Report D L Lloyd Smith —p 289
Initial Survey of Slow Potential Changes Obtained Under Resting Conditions and Incident to Convulsive Therapy S Goldring, G Ulett, J O Leary and A Greditzer —p *297*
Studies of Regulatory Functions of Limbic Cortex N Sloan and H Jasper —p 317

Journal of Aviation Medicine, St. Paul

21:281-358 (Aug) 1950

*Effect of Repeated Exposure of Human Subjects to 18 000 Feet Without Supplemental Oxygen, to Hyperventilation, and to 35,000 Feet with 100 Per Cent Oxygen for One Hour, on Ascorbic Acid Excretion and Plasma Level and on Urine *pH* L R Krasno, J H Cilley, J H Boutwell and others —p 283
*Cardiovascular Pressor Reflex Mechanism and Cerebral Circulation Under Negative G Head to Tail Acceleration S Rosenfeld and C F Lombard —p *293*
Extent of Pathological Damage to Animals Explosively Decompressed in Cold Environment W L Burkhardt, R E Hedblom, A W Hetherington and H F Adler —p 304
Medical Services of the Department of Defense R L Meiling —p *309*
Performance Under Acute Hypoxic Stress in Acclimatized Mice R E Wilhelm, M S Comess and J P Marbarger —p 313
New Medical Service of the United States Air Force H G Armstrong —p 318
Early History of the Aero Medical Association R J Benford —p 321
Flight Training for Flight Surgeons E M Wurzel —p 326
Visibility of *Cockpit Instruments* N L Barr —p *328*
Problems on Parachute Jumps Over the Andes G Garrido Lecca Frias —p 343

Hypoxia and Ascorbic Acid Excretion—Krasno and his associates observed that exposure of human subjects to hypoxia in an altitude chamber appeared to alter the metabolism of ascorbic acid They found that *when subjects* were receiving 91 mg of ascorbic acid daily and were exposed to an altitude of 18,000 feet without oxygen supplementation, there occurred a gradual depletion of ascorbic acid Evidence indicates that the depletion was due to increased utilization When persons were receiving 141 mg of ascorbic acid daily and were exposed three times a week to an altitude of 35,000 feet while breathing 100 per cent oxygen, a hyperexcretion of ascorbic acid occurred during four weeks of exposure At this level of intake of ascorgic acid, it is unlikely that any tissue deficiency will occur with time In view of the role that ascorbic acid plays in cellular oxidation-reduction reactions, its presence normally in a relatively high concentration in the adrenals and the observation that the vitamin may be depleted by repeated exposure to hypoxia, which also depletes body base, it is suggested that liberal quantities of fruit or fruit juices be supplied in the diet of persons who may be subjected to exposure to a discontinuous or continuous hypoxia, or to hyperventilation

Effects of Acceleration—Rosenfeld and Lombard are concerned with the effects of negative acceleration (negative gravity), by which they mean the acceleration that acts *in the head* to heart direction and that results in the force of inertia tending to throw the blood mass and organs toward the head The study of comparative physiology reveals wide *variations* in response of the various members of the mammalian family The authors studied 28 animals, including 10 goats, 10 dogs, 5 monkeys and 3 rabbits When the data obtained were compared with those available for man, it was found that the monkey and the dog respond in a manner that most closely parallels the reflex cardiovascular response shown by man during the action of negative gravity It is believed that the animal or person experiences the most harmful insult to cerebral circulation at the termination of the acceleration Factors that tend to maintain minute cardiac output as well as factors preventing generalized vasodilatation should be investigated for possibilities of offering greater tolerance to negative acceleration It seems likely that the symptoms experienced by pilots exposed to negative gravity may be attributed to two phenomena (1) the increase in intravascular and extravascular cephalic pressure and (2) the stagnation of cerebral flow The former produces the feeling of extreme fulness of the head while the latter is probably responsible for mental confusion, and loss of consciousness The possibility of a central type of syncope from stimulation of the carotid sinus cannot be overlooked

Journal of Bacteriology, Baltimore

60:215-368 (Sept) 1950 Partial Index

Comparison of Phenylpyruvic Acid Reaction and Urease Test in Differentiation of Proteus from Other Enteric Organisms S D Henriksen —p 225
Sulfur Metabolism in Escherichia Coli I Sulfate Metabolism of Normal and Mutant Cells D B Cowie, E T Bolton and M K Sands —p 233
Rapid Assay for Growth Determination of Microbiological Susceptibility and Fungistatic Activity G R Mandels and R G H Siu —p 249
Effects of X Rays Produced at 50 Kilovolts on Different Species of Bacteria H Iram, B E Proctor and C G Dunn —p 263
Effect of Metabolites upon Growth and Variation of Brucella Abortus R J Goodlow, L A Mika and W Braun —p 291
Nutrition and Role of Reducing Agents in Formation of Streptolysin O by Group A Hemolytic Streptococcus H D Slade and G A Knox —p 301
Nutritional Requirements for Hydrogenase Production by Escherichia Coli D Billen and H C Lichstein —p 311
Morphological Characteristics of Paired Sulfonamide Susceptible and Sulfonamide Resistant Strains of Staphylococcus Aureus M E Hunter, S Mudd and M A Woodburn —p 315
Studies on Metabolism of Blastomyces Dermatitidis S Levine and M Novak —p 333

Journal of Pediatrics, St. Louis

37:291-434 (Sept) 1950

*Comparison of 'Symptomatic Treatment,' Gamma Globulin, and Penicillin in Treatment of Scarlet Fever L Weinstein and S I Potsubay —p 291
*Aureomycin in Treatment of Pertussis Preliminary Report W J Miller and J E Ross —p 307
Resuscitation of Newborn Infant Use of Positive Pressure Oxygen Air Lock A Bloxsom —p 311
Incomplete Pancreatic Deficiency in Cystic Fibrosis of Pancreas G E Gibbs W L Bostick and P M Smith —p 320
Cerebral Birth Injury in Retrospect W D Belnap C F McKhann and C S Beck —p 326
Glycemic Response of Newborn Infant to Epinephrine Administration Preliminary Report M M Desmond, J R Hild and J H Gast —p 341
Note on Treatment of Diaper Rash with Alkyl Dimethyl Benzyl Ammonium Chlorides (Roccal) W Pfeffer Jr and C A Smith —p 351
Measure of Immunologic Responses to Improved Preparation of Diphtheria and Tetanus Toxoids (Alum Precipitated) Combined with Pertussis Vaccine R M Tyson, B J Houston and M M Paschkis —p 357
Premature Mortality Analysis of 518 Cases of Prematurity with Comparison of Negro and White Races G E Brockway, E T Reilly and M M Rice —p 362
Dehydrated Banana in Dietetic Management of Diarrheas of Infancy J H Fries N J Chiara and R J Waldron —p 367
Purpura Following Exposure to DDT F E Karpinski Jr —p 373
High Gastrointestinal Obstruction in Newborn Infant Radiological Interpretation M Dannenberg, C Storch, S D Sternberg and C Hoffman —p 380

Treatment of Scarlet Fever.—Weinstein and Potsubay treated 255 patients with scarlet fever by three different regimens The three types of treatment were a single intramuscular injection of 20 to 60 cc of gamma globulin, penicillin in a dose of 15,000 units given intramuscularly every three hours (120,000 units daily) for 10 days and so-called symptomatic treatment, consisting of bed rest and throat irrigations Gamma globulin was observed to cause rapid fading of the rash but had no effect on the streptococci in the pharynx, allowed the carrier state to persist as long as it did in untreated patients and had little, if any, effect on the development of suppurative complications or such nonsuppurative sequelae as rheumatic fever Penicillin appeared to be the agent of choice in the treatment of scarlet fever, because it caused rapid disappearance of the local focus of infection, eradicated Streptococcus pyogenes from the pharynx speedily assured eradication of the carrier state and significantly decreased the incidence of serious suppurative complications The problem of the occurrence of rheumatic fever and of glomerular nephritis following treatment of the initial streptococcic infection will be discussed in a later paper In the group of patients given symptomatic treatment the course of the disease was more or less typical There was a relatively slow recovery at the site of streptococcic invasion, frequent persistence of the organism for a period beyond the isolation time and the occurrence of local and distant bacterial and nonbacterial complications

Aureomycin in Pertussis—Miller and Ross treated with aureomycin six children with pertussis who were between the ages of 5 weeks and 3 years Doses of 350 mg per kilogram of body weight were given every 24 hours for periods of eight to 10 days Hyperimmune serum was administered before the use of aureomycin in three cases, and, in one of these, streptomycin was given intramuscularly for an 18 hour period just preceding the start of aureomycin therapy All the patients manifested severe types of the disease Improvement in these patients after institution of aureomycin treatment was gradual and steady Patients who were cyanotic and vomiting showed the greatest change These manifestations usually cleared by the third to fifth day Elevated temperatures, when present, subsided in this interval as well Paroxysms of coughing persisted for a longer time but with steadily diminishing frequency The patients were free of this symptom by the seventh to the tenth day after institution of the treatment Convalescence after the initial period of improvement was uneventful Despite poor prognosis, almost complete recovery occurred in less than two weeks in all the patients after the institution of aureomycin treatment Although some of the patients received other therapy, the improvement in all occurred following aureomycin therapy alone The uniformity of the recovery following aureomycin therapy is the best evidence for the effectiveness of the drug, although the small number of cases reported does not permit precise evaluation or adequate comparison with other methods of treatment

Maine Medical Association Journal, Portland

41·357-376 (Sept) 1950

Aureomycin in Ocular Syphilis J E Poulin —p 357
Acute Intussusception Report of 9 Cases O F Pomerleau —p 359
Preference of Transverse Incisions in Gallbladder Surgery R L Chasse —p 361
Tuberculosis of Bone Treated with Streptomycin Case Report E J Smith —p 364
Roentgen Therapy for Treatment of Painful Shoulder M F Lubell —p 368

Medical Annals of District of Columbia, Washington

19:479 542 (Sept) 1950

Anxiety R A Cohen —p 479
Diagnostic Aids in Coronary Disease Using Exercise with Multiple Chest Leads J E Smith —p 485
Treatment of Venereal Diseases S Olansky and G S Landman —p 491
Cholecystocolic Fistula Report of Case A F Castro, G W Ault and R S Smith —p 495
Albert Freeman Africanus King (1841 1914) His Theory as to the Transmission of Malaria by Mosquitoes W B Daniels —p 499

New England Journal of Medicine, Boston

243 395-430 (Sept 14) 1950

*Fundamental Consideration of Anticoagulant Therapy L B Jaques —p 395
Management of the Neurotic Patient D J MacPherson —p 402
Calcified Leiomyoma of Stomach J Garbarini and H P Price —p 406
Medical Malpractice R Ford —p 408
Neurology W K Jordan and H H Merritt —p 408

Anticoagulant Therapy.—The crux of anticoagulant therapy, according to Jaques, is careful control of the drug so as to steer an even course between the dangers of thrombosis and those of hemorrhage Of the two anticoagulants in general use, heparin acts directly on the blood It is ineffective by mouth of 1,000 cc. of 5 per cent glucose in 0.85 per cent sodium chloride solution were administered daily for three days following operation in five patients who had undergone partial colon resection, one a vagotomy and one a hemorrhoidectomy. The urinary volume and the total output (urine plus gastrointestinal suction) were correlated with the total eosinophil counts, and it was found that the curves could be almost superimposed. In a second group of three patients, one of whom underwent gastric resection, one resection of the right colon and one combined abdominoperineal resection, 750 cc. of a 5 per cent dextrose solution were administered in each of the first four six-hour periods postoperatively, and rates of urinary excretion of water, sodium, potassium and chloride were measured and correlated with the total eosinophil counts in each period. When adrenocortical function was maximal, as indicated by a profound fall in the total eosinophil count, there was a decreased rate of excretion of sodium, water and chloride, with an increased rate of excretion of potassium. The rates of excretion were identical with results obtained following the administration of desoxycorticosterone. The author discusses a number of factors which might affect the postoperative excretion of salt and water. The vigor of eosinophil response to trauma may be in some way related to the vitality of the patient. He draws attention to the diminished volume of fluids secreted into the intestinal tract during the first 24 hours postoperatively. This may represent another manifestation of a profound generalized derangement in the membrane permeability.

Blood, New York

5:793-886 (Sept.) 1950

*Hereditary Spherocytic Anemia in the Negro. C. E. Butterworth Jr., R. R. Kracke and W. H. Riser Jr.—p. 793.
Severe Mediterranean Anemia (Cooley's Anemia) in a Chinese Child. Q. B. DeMarsh.—p. 798.
Effect of Racial Mixtures upon Erythrocytic Sickling. J. H. Hodges. —p. 804.
Familial Nonspherocytic Hemolytic Anemia. E. Kaplan and W. W. Zuelzer.—p. 811.
*Paroxysmal Nocturnal Hemoglobinuria; Mechanism of Hemolysis and Its Relation to Coagulation Mechanism. W. H. Crosby and W. Dameshek. —p. 822.
Paroxysmal Nocturnal Hemoglobinuria; Specific Test for Disease Based on Ability of Thrombin to Activate the Hemolytic Factor. W. H. Crosby. —p. 843.
Microscopic and Histochemical Studies on Auer Bodies in Leukemic Cells. G. A. Ackerman.—p. 847.
Beta-Glucuronidase of Human White Blood Cells. R. J. Rossiter and E. Wong.—p. 864.
Efficiency of an Iron-Molybdenum Preparation as Evaluated by Means of Iron Absorption Tests. S. Gullberg and B. Vahlquist.—p. 871.
Cause of Sexual Differences in Erythrocyte, Hemoglobin and Serum Iron Levels in Human Adults. B. Vahlquist.—p. 874.

Hereditary Spherocytic Anemia in the Negro.—Butterworth and co-workers studied 12 persons representing four generations of a Negro family, two of whom, both women, appeared to have typical cases of hereditary spherocytic anemia. Splenectomy was performed on one. The blood values returned to normal, and the patient remained completely well. The second patient never had a hemolytic crisis, although reticulocytosis and the large size of the spleen indicated that the disease was active. Five persons were normal. The remaining five had microspherocytosis and an increased red cell fragility but were completely asymptomatic and appeared in good health. They were considered carriers of hereditary spherocytic anemia. This disease has always been thought to be transmitted as a simple mendelian dominant factor. With regard to the genetic mechanism involved, the presence of three recognizable categories—patients, carriers and normals—indicates at once that a simple single-gene, dominant-recessive relation is not the explanation. The suggestion is made that spherocytic anemia in the Negro is due to multiple factors. The high incidence of the disease in females is again pointed out.

Paroxysmal Nocturnal Hemoglobinuria.—Crosby and Dameshek studied the mechanics of hemolysis in the blood of six patients with paroxysmal nocturnal hemoglobinuria, a rare hemolytic anemia of obscure origin, characterized by a defect of the erythrocytes, which makes them susceptible to hemolysis by a normal plasma or serum factor. Results showed that the hemolytic reaction does not involve a complement-antibody reaction, but is rather an enzyme-like reaction that is related to the coagulation mechanism of the blood. Evidence suggests that the heat-labile hemolytic factor in paroxysmal nocturnal hemoglobinuria if not identical with the serum coagulation accelerator, resembles it in many aspects. The hemolytic factor is present in plasma as an inert precursor which is activated by thrombin. Bishydroxycoumarin (dicumarol®) inhibited hemolysis in a patient with paroxysmal nocturnal hemoglobinuria. Therapeutically, the drug was disappointing. It did not reduce the hemolytic precursor and did not prevent hemolytic crises, but its use was not dangerous, suggesting that it may be of value during crises of this disease when thrombosis threatens. Dilute heparin facilitated the activation of the hemolytic enzyme by thrombin. The use of heparin in paroxysmal nocturnal hemoglobinuria may be dangerous. Lysis of paroxysmal nocturnal hemoglobinuria of cells by a substance related to the clotting mechanism offers a new approach to the study of the coagulation problem.

Electroencephalography and Clin. Neurophys., Boston

2:243-372 (Aug.) 1950. Partial Index

Homeostasis of Cerebral Excitability. H. Davis.—p. 243.
Combined Photic and Metrazol Activation of Brain. H. Gastaut.—p. 249.
Experiences with Combined Stroboscopic and Metrazol Activation of EEG in Epileptics and in Patients Suspected of Having Seizures (Gastaut Technique). R. S. Schwab and J. A. Abbott.—p. 262.
Experimental Study of Mechanism of Photic Activation in Idiopathic Epilepsy. H. Gastaut and J. Hunter.—p. 263.
Electroencephalogram During Hyperventilation Followed by Apnoea: Preliminary Report. D. L. Lloyd-Smith.—p. 289.
Initial Survey of Slow Potential Changes Obtained Under Resting Conditions and Incident to Convulsive Therapy. S. Goldring, G. Ulett, J. O'Leary and A. Greditzer.—p. 297.
Studies of Regulatory Functions of Limbic Cortex. N. Sloan and H. Jasper.—p. 317.

Journal of Aviation Medicine, St. Paul

21:281-358 (Aug.) 1950

*Effect of Repeated Exposure of Human Subjects to 18,000 Feet Without Supplemental Oxygen, to Hyperventilation, and to 35,000 Feet with 100 Per Cent Oxygen for One Hour, on Ascorbic Acid Excretion and Plasma Level and on Urine *p*H. L. R. Krasno, J. H. Cilley, J. H. Boutwell and others.—p. 283.
*Cardiovascular Pressor Reflex Mechanism and Cerebral Circulation Under Negative G Head-to-Tail Acceleration. S. Rosenfeld and C. F. Lombard.—p. 293.
Extent of Pathological Damage to Animals Explosively Decompressed in Cold Environment. W. L. Burkhardt, R. E. Hedblom, A. W. Hetherington and H. F. Adler.—p. 304.
Medical Services of the Department of Defense. R. L. Meiling.—p. 309.
Performance Under Acute Hypoxic Stress in Acclimatized Mice. R. E. Wilhelm, M. S. Comess and J. P. Marbarger.—p. 313.
New Medical Service of the United States Air Force. H. G. Armstrong. —p. 318.
Early History of the Aero Medical Association. R. J. Benford.—p. 321.
Flight Training for Flight Surgeons. E. M. Wurzel.—p. 326.
Visibility of Cockpit Instruments. N. L. Barr.—p. 328.
Problems on Parachute Jumps Over the Andes. G. Garrido-Lecca Frias. —p. 343.

Hypoxia and Ascorbic Acid Excretion.—Krasno and his associates observed that exposure of human subjects to hypoxia in an altitude chamber appeared to alter the metabolism of ascorbic acid. They found that when subjects were receiving 91 mg. of ascorbic acid daily and were exposed to an altitude of 18,000 feet without oxygen supplementation, there occurred a gradual depletion of ascorbic acid. Evidence indicates that the depletion was due to increased utilization. When persons were receiving 141 mg. of ascorbic acid daily and were exposed three times a week to an altitude of 35,000 feet while breathing 100 per cent oxygen, a hyperexcretion of ascorbic acid occurred during four weeks of exposure. At this level of intake of ascorgic acid, it is unlikely that any tissue deficiency will occur with time. In view of the role that ascorbic acid plays in cellular oxidation-reduction reactions, its presence normally in a relatively high concentration in the adrenals and the observation that the vitamin may be depleted by repeated exposure to hypoxia, which also depletes body base, it is suggested that liberal quantities of fruit or fruit juices be supplied in the diet of persons who may be subjected to exposure to a discontinuous or continuous hypoxia, or to hyperventilation.

Effects of Acceleration.—Rosenfeld and Lombard are concerned with the effects of negative acceleration (negative gravity), by which they mean the acceleration that acts in the head-to-heart direction and that results in the force of inertia tending to throw the blood mass and organs toward the head. The study of comparative physiology reveals wide variations in response of the various members of the mammalian family The authors studied 28 animals, including 10 goats, 10 dogs, 5 monkeys and 3 rabbits When the data obtained were compared with those available for man, it was found that the monkey and the dog respond in a manner that most closely parallels the reflex cardiovascular response shown by man during the action of negative gravity It is believed that the animal or person experiences the most harmful insult to cerebral circulation at the termination of the acceleration Factors that tend to maintain minute cardiac output as well as factors preventing generalized vasodilatation should be investigated for possibilities of offering greater tolerance to negative acceleration It seems likely that the symptoms experienced by pilots exposed to negative gravity may be attributed to two phenomena (1) the increase in intravascular and extravascular cephalic pressure and (2) the stagnation of cerebral flow The former produces the feeling of extreme fulness of the head, while the latter is probably responsible for, mental confusion, and loss of consciousness The possibility of a central type of syncope from stimulation of the carotid sinus cannot be overlooked

Journal of Bacteriology, Baltimore

60:215-368 (Sept) 1950 Partial Index

Comparison of Phenylpyruvic Acid Reaction and Urease Test in Differentiation of Proteus from Other Enteric Organisms S D Henriksen —p 225
Sulfur Metabolism in Escherichia Coli I Sulfate Metabolism of Normal and Mutant Cells D B Cowie, L T Bolton and M K Sands —p 233
Rapid Assay for Growth Determination of Microbiological Susceptibility and Fungistatic Activity G R Mandels and R G H Siu —p 249
Effects of X Rays Produced at 50 Kilovolts on Different Species of bacteria H Fram, B E Proctor and C G Dunn —p 263
Effect of Metabolites upon Growth and Variation of Brucella Abortus R J Goodlow, L A Mika and W Braun —p 291
Nutrition and Role of Reducing Agents in Formation of Streptolysin O by Group A Hemolytic Streptococcus H D Slade and G A Knox —p 301
Nutritional Requirements for Hydrogenase Production by Escherichia Coli D Billen and H C Lichstein —p 311
Morphological Characteristics of Paired Sulfonamide Susceptible and Sulfonamide Resistant Strains of Staphylococcus Aureus M E Hunter, S Mudd and M A Woodburn —p 315
Studies on Metabolism of Blastomyces Dermatitidis S Levine and M Novak —p 333

Journal of Pediatrics, St. Louis

37:291-434 (Sept) 1950

*Comparison of 'Symptomatic Treatment,' Gamma Globulin, and Penicillin in Treatment of Scarlet Fever L Weinstein and S I Potsubay —p 291
*Aureomycin in Treatment of Pertussis Preliminary Report W J Miller and J E Ross —p 307
Resuscitation of Newborn Infant Use of Positive Pressure Oxygen Air Lock A Bloxsom —p 311
Incomplete Pancreatic Deficiency in Cystic Fibrosis of Pancreas G E Gibbs, W L Bostick and P M Smith —p 320
Cerebral Birth Injury in Retrospect W D Belnap, C F McKhann and C S Beck —p 326
Glycemic Response of Newborn Infant to Epinephrine Administration Preliminary Report M M Desmond, J R Hild and J H Gist —p 341
Note on Treatment of Diaper Rash with Alkyl Dimethyl Benzyl Ammonium Chlorides (Roccal) W Pfeffer Jr and C A Smith —p 351
Measure of Immunologic Responses to Improved Preparation of Diphtheria and Tetanus Toxoids (Alum Precipitated) Combined with Pertussis Vaccine R M Tyson, B J Houston and M M Paschkis —p 357
Premature Mortality Analysis of 518 Cases of Prematurity with Comparison of Negro and White Races G E Brockway, E T Reilly and M M Rice —p 362
Dehydrated Banana in Dietetic Management of Diarrheas of Infancy J H Fries, N J Chiara and R J Waldron —p 367
Purpura Following Exposure to DDT F E Karpinski Jr —p 373
High Gastrointestinal Obstruction in Newborn Infant Radiological Interpretation M Dannenberg, C Storch, S D Sternberg and C Hoffman —p 380

Treatment of Scarlet Fever.—Weinstein and Potsubay treated 255 patients with scarlet fever by three different regimens The three types of treatment were a single intramuscular injection of 20 to 60 cc of gamma globulin, penicillin in a dose of 15,000 units given intramuscularly every three hours (120,000 units daily) for 10 days and so-called symptomatic treatment, consisting of bed rest and throat irrigations Gamma globulin was observed to cause rapid fading of the rash but had no effect on the streptococci in the pharynx, allowed the carrier state to persist as long as it did in untreated patients and had little, if any, effect on the development of suppurative complications or such nonsuppurative sequelae as rheumatic fever Penicillin appeared to be the agent of choice in the treatment of scarlet fever, because it caused rapid disappearance of the local focus of infection, eradicated Streptococcus pyogenes from the pharynx speedily assured eradication of the carrier state and significantly decreased the incidence of serious suppurative complications The problem of the occurrence of rheumatic fever and of glomerular nephritis following treatment of the initial streptococcic infection will be discussed in a later paper In the group of patients given symptomatic treatment the course of the disease was more or less typical There was a relatively slow recovery at the site of streptococcic invasion, frequent persistence of the organism for a period beyond the isolation time and the occurrence of local and distant bacterial and nonbacterial complications

Aureomycin in Pertussis.—Miller and Ross treated with aureomycin six children with pertussis who were between the ages of 5 weeks and 3 years Doses of 350 mg per kilogram of body weight were given every 24 hours for periods of eight to 10 days Hyperimmune serum was administered before the use of aureomycin in three cases, and, in one of these, streptomycin was given intramuscularly for an 18 hour period just preceding the start of aureomycin therapy All the patients manifested severe types of the disease Improvement in these patients after institution of aureomycin treatment was gradual and steady Patients who were cyanotic and vomiting showed the greatest change These manifestations usually cleared by the third to fifth day Elevated temperatures, when present, subsided in this interval as well Paroxysms of coughing persisted for a longer time but with steadily diminishing frequency. The patients were free of this symptom by the seventh to the tenth day after institution of the treatment Convalescence after the initial period of improvement was uneventful Despite poor prognosis, almost complete recovery occurred in less than two weeks in all the patients after the institution of aureomycin treatment Although some of the patients received other therapy, the improvement in all occurred following aureomycin therapy alone The uniformity of the recovery following aureomycin therapy is the best evidence for the effectiveness of the drug, although the small number of cases reported does not permit precise evaluation or adequate comparison with other methods of treatment

Maine Medical Association Journal, Portland

41:357-376 (Sept) 1950

Aureomycin in Ocular Syphilis J E Poulin —p 357
Acute Intussusception Report of 9 Cases O F Pomerleau —p 359
Preference of Transverse Incisions in Gallbladder Surgery R L Chasse —p 361
Tuberculosis of Bone Treated with Streptomycin Case Report E J Smith —p 364
Roentgen Therapy for Treatment of Painful Shoulder M F Lubell —p 368

Medical Annals of District of Columbia, Washington

19:479-542 (Sept) 1950

Anxiety R A Cohen —p 479
Diagnostic Aids in Coronary Disease Using Exercise with Multiple Chest Leads J E Smith —p 485
Treatment of Venereal Diseases S Olansky and G S Landman —p 491
Cholecystocolic Fistula Report of Case A F Castro, G W Ault and R S Smith —p 495
Albert Freeman Africanus King (1841 1914) His Theory as to the Transmission of Malaria by Mosquitoes W B Daniels —p 499

New England Journal of Medicine, Boston

243 395-430 (Sept 14) 1950

*Fundamental Consideration of Anticoagulant Therapy L B Jaques —p 395
Management of the Neurotic Patient D J MacPherson —p 402
Calcified Leiomyoma of Stomach J Garbarini and H P Price —p 406
Medical Malpractice R Ford —p 408
Neurology W K Jordan and H H Merritt —p 408

Anticoagulant Therapy.—The crux of anticoagulant therapy, according to Jaques, is careful control of the drug so as to steer an even course between the dangers of thrombosis and those of hemorrhage Of the two anticoagulants in general use, heparin acts directly on the blood It is ineffective by mouth and must be given parenterally It acts immediately, and recovery is rapid This means that control of anticoagulant therapy using heparin is relatively simple The clotting time will rapidly return to normal when administration is stopped When a great excess of heparin has been administered through error, an antidote is available in the form of protamine Bishydroxycoumarin (dicumarol®) acts by interfering with the formation of thrombin by the liver It increases the prothrombin time but has no effect on the clotting time The latent period is about 24 to 40 hours It is long acting After cessation of treatment with this drug the prothrombin time may remain prolonged for as long as 10 days Hence, control is not as easy if overdoses of the drug are given inadvertently The antidote for overdosage is fresh blood Large doses of vitamin K neutralize the action of bishyroxycoumarin experimentally but are of less value clinically as an antidote The author discusses the measurement of the degree of hypocoagulability produced by these drugs and the maintenance of levels of the drugs in the body sufficient to guarantee satisfactory hypocoagulability He stresses that during treatment with heparin the clotting time must be determined and during treatment with bishydroxycoumarin the prothrombin time must be watched

New York State Journal of Medicine, New York

50:2095-2222 (Sept 15) 1950

Health and Medical Services for Agricultural Workers in the Tropics E I Salisbury —p 2159
Appraisal of Industrial Health Examinations F H Shillito —p 2163
Serologic Tests for Cancer L J Boyd —p *2167*
Clinical Evalation of Aureomycin, Chloramphenicol and Terramycin V Knight —p 2173
Newer Insulins with Special Reference to NPH Insulin F B Peck and W R Kirtley —p 2182
Working Minimum of Hepatic Function Tests for Rationalizing Treatment of Jaundice F M Hanger —p 2188
Periodic Disease B W Billow —p 2192
Reduction of Mortality from Abortion A H Rosenthal —p 2195

Pediatrics, Springfield, Ill.

6:173 328 (Aug) 1950 Partial Index

Erythroblastosis Fetalis I Problems in Interpretation of Changing Mortality in Erythroblastosis Fetalis V C Vaughan III, F H Allen Jr and L K Diamond —p 173
*Use of Parenteral Potassium Therapy in Surgical Patients Its Role in Preventing Chloride Loss C U Lowe M Rourke, E MacLachlan and A M Butler —p 183
Adrenocortical Function in Newborn Infant as Measured by Adrenocorticotropic Hormone Eosinophil Response R Klein and J Hanson —p 192
Dosage of Drugs in Infants and Children I Atropine K R Unna, K Glaser, E Lipton and P R Patterson —p 197
677 Congenitally Malformed Infants and Associated Gestational Characteristics II Parental Factors J Worcester S S Stevenson and R G Rice —p 208
Closing of Anterior Fontanelle M R Aisenson —p 223
*Neurologic Lesions in Newly Born Infant I Preliminary Study, II Role of Prolonged Labor, Asphyxia and Delayed Respiration H M Keith and M A Norval —p 229
Treatment of Thyrotoxicosis in Children with Thiourea Derivatives R H Kunstadter and A F Stein —p 244
Studies of Cardiovascular and Renal Systems in Newly Born Infant Using Fluorescein I Circulation Time Immediately After Birth L B Slobody, G D Rool, M Levbarg and M Morey —p 254
Penicillin and Its Effect in Producing a Predominant Gram Negative Bacillary Flora in Upper Respiratory Tract of Children F D Haffner, E Neter and M I Rubin —p 262
Pernicious Anemia in an Eight Year Old Girl Additional Observations in Case Previously Reported as 'Nutritional Anemia in Infant Responding to Purified Liver Extract' L Rosenzweig and O C Bruton —p 269
Electroencephalographic Findings in Sickle Cell Anemia F S Hill, J G Hughes and B C Davis —p 277

Parenteral Potassium Therapy in Surgical Patients—Lowe and co-workers studied the serum chloride concentration in five surgical patients, two infants aged 21 months and 7 months with intussusception and three children, two with perforated appendix and peritonitis Material removed by gastrointestinal suction and the urine were analyzed for sodium, chloride, potassium and nitrogen One of the two children with a perforated appendix received sodium chloride and dextrose, the other a similar regimen, to which potassium was added Alimentation was entirely by vein Both children had approximately the same water intake Results supplemented previous observations by other investigators that following surgical intervention patients may have a low serum chloride concentration These patients show the effects of fasting, dehydration and potassium depletion owing to an alarm reaction or to alkalosis from loss of gastric chloride Administration of isotonic sodium chloride solution may be ineffective in accomplishing extracellular repair, because sodium and water go to the dehydrated and potassium depleted cells and the chloride is excreted More effective physiological hydration of both fluid compartments of the body (chloride being conserved by the kidneys and sodium tending to stay in its proper extracellular position) may be obtained by a decrease in the ratio of sodium to water and addition of potassium Similar conservation of urinary chloride and elevation in serum chloride has been noted following potassium therapy in patients with low serum chloride concentrations associated with ulcerative colitis, where excessive loss of potassium and chloride in the urine suggests a similar alarm reaction

Neurological Lesions in Newborn Infants—Keith and Norval report that 57 (1 3 per cent) of 4,464 infants born in St Mary's Hospital in Rochester, Minn, in the course of one year, had lesions that affected the nervous system primarily and that were evident during the neonatal period There were only five among the 57 infants who had plainly difficult births It seems reasonable to conclude that difficulties during delivery *had comparatively little to do with persistent neurological* abnormalities in most of the infants who survived A survey was made of the condition of infants born in the same hospital during two and a half years to determine the relation of prolonged labor, asphyxia and delayed respiration to the occurrence of trauma and, thereby, the relation to neurological lesions of the infant Prolonged labor appeared to increase the risk of intracranial injury and death of the infant However, *if the infants survived, there was little or no abnorality in subsequent* development and no increase in neurological disturbances, at least during the first few years of life More children had convulsive disorder in the "normal" or control group than in the group of those subjected to prolonged delivery The same was true among the infants who were asphyxiated, that is there were more who had convulsive disorder in the control group than among those who were asphyxiated There were more deaths and more abnormal infants among those who were asphyxiated, but these included many premature infants, of whom many were not viable If the infants survived the neonatal period, they developed normally, or at least no more abnormalities were noted among those who were asphyxiated than among the controls Anoxia caused by delay in respiration did not have a serious prognosis in those infants who survived the neonatal period Even a delay of 11 to 15 minutes, while fatal in two instances, did not appear to cause any abnormality, at least during the first four years of life, in the infants who survived

Pennsylvania Medical Journal, Harrisburg

53:929-1054 (Sept) 1950

*Clinical Experience with Mercurital, and Oral Mercurial Diuretic, in Ambulatory Patients W D Stroud, L B La Place, J A Wagner and I B Miller —p 953
Progress Report on American Medicine E E Irons —p 957
Skin *Diseases in* Children S R Perrin —p 961
Diagnosis of Cancer R C Horn —p 966
Syphilitic Aortitis Diagnosis by Means of Ascending Aortic Calcification J Jackman —p 972
Clinical Aspects of *Congenital Heart Disease* R *Ash* —p *974*
Recent Advances in Anesthesia for Thoracic Surgery Uses of Procaine Hydrochloride D D Grove —p 978
Malignant Lesions of the Mouth Lips and Jaw H P Royster —p 984

Mercurial Diuretics in Ambulatory Patients—Stroud and his associates stress the advantages of oral over parenteral administration of diuretics They used mercurital, a combination of mersalyl acid and theobromine calcium They administered this preparation orally for one to eight months to 22 ambulatory patients, who previously required one or two weekly injections of a parenteral mercurial diuretic for the control of congestive heart failure The orally administered diuretic was found to be as effective as the parenterally administered preparations in the prevention and control of congestive failure in ambulatory patients when given in dosage of one to three tablets daily Although gastric irritation and nausea appeared to be minimized, this drug, like other preparations orally administered, caused soreness of the gums, abdominal cramps and diarrhea in certain patients. These untoward effects occurred in six patients in the present series, all of whom were taking two or more tablets daily. They prohibited further use of the drug in four of these patients, and they were adequately controlled in the remainder of the patients by temporary withdrawal of the drug, reduction of dosage and improvement in oral hygiene. The oral use of this diuretic appears preferable to the parenteral administration of mercurial diuretics for ambulatory patients in the absence of individual susceptibility to complicating stomatitis and intestinal disorders.

Plastic and Reconstructive Surgery, Baltimore

6:97-178 (Aug.) 1950. Partial Index

Some Half Forgotten Chapters in Development of Plastic Surgery. S. L. Koch.—p. 97.
Mammaplasty, One-Stage Transposition Operation. E. M. Hanrahan. —p. 110.
Late Treatment of Burns. K. M. Marcks and A. E. Trevaskis.—p. 119.
Reconstruction of Scrotum and Skin of Penis. H. May.—p. 134.
*Use and Therapeutic Value of Music in Hospital and Operating Room. K. L. Pickrell, J. T. Metzger, N. J. Wilde and others.—p. 142.
Obliteration of Scars by Shaving. J. E. Sheehan and W. A. Swanker. —p. 153.
*Beryllium Granuloma of Nose: Case Report. V. H. Kazanjian and A. T. Joseph.—p. 156.

Music in Hospital and Operating Room.—Pickrell and his co-workers report on the use of music at Duke Hospital. Facilities for radio reception are provided for patients in their rooms or wards. The authors believed that music might be even more beneficial to patients who are being operated on under local, regional or spinal anesthesia. The comfort and composure of patients was apparent immediately, and their minds were diverted and occupied by the music rather than by the thought of the operation. Since the most suitable music could not always be obtained from the radio and because of the annoyance of static interference from x-ray and other hospital apparatus, record players were used. The authors stress the importance of music as a psychotherapeutic factor in the treatment of all patients, particularly of surgical patients and of children. Music that is slow, restful and suggestive of calm and sleep is usually most desired by patients. Hymns, spirituals and martial music increased the emotional tension in some patients and were the least acceptable. Cushioned earphones exclude all sounds from the operating room, thereby placing the patient, surgeon and assistants at comparative ease, since the possibility of erroneous interpretation of conversation or the development of harmful suspicion is eliminated. A radio-phonograph with automatic record changer supplies an almost continuous source of music or reading. Slow revolving unbreakable records are available with essentially unlimited selection of type of music.

Beryllium Granuloma of Nose.—Kazanjian and Joseph describe the case of a man who developed a granulomatous lesion on the dorsum of the nose following laceration by a fluorescent bulb. The wound failed to heal, and it appeared ragged and inflamed. A biopsy specimen revealed a granulomatous reaction suggestive of both sarcoid and of tuberculosis. The lesion was completely excised, with a generous margin of normal skin about it and replaced with a full thickness graft taken from behind the ear. Care was taken to suture the graft to the normal skin margin. Examination of the resected specimen disclosed granuloma of the beryllium type. The graft was completely successful. There was no evidence of recurrence several months later. Beryllium granuloma is best dealt with by wide excision, the wound being grafted or primarily reapproximated, depending on its location.

Rhode Island Medical Journal, Providence

33:389-444 (Aug.) 1950

Body Fluids and Rationale of Fluid Therapy. J. L. Gamble.—p. 403.
Medicine's Concern About Licensure of Medical Record Librarians. C. L. Farrell.—p. 409.

33:445-508 (Sept.) 1950

Asthma in Infancy. W. P. Buffum.—p. 461.
Osteoid Oestoma of Astragalus. S. Spadea.—p. 464.
Sympathetic Nerve Block. E. Damarjian.—p. 466.
Removal of Malignant Kidney Tumor Through Thoraco-Abdominal Incision: Report of Case. J. F. Streker, A. H. Jackvony, W. A. McDonnell and J. E. Farley.—p. 469.

Southern Medical Journal, Birmingham, Ala.

43:755-838 (Sept.) 1950. Partial Index

Diagnosis and Management of Chest Tumors. T. H. Burford.—p. 755.
*Results After Operative Removal of Intervertebral Discs. R. T. Odell, R. H. Ramsey and J. A. Key.—p. 759.
Dacryocystorhinostomy: External Approach. M. W. Hester.—p. 766.
Treatment of Premonitory Signs and Symptoms of Ménière's Symptom Complex. R. Harris.—p. 770.
Comparative Study of Certain Vasoconstrictors on Duration of Spinal Anesthesia with Procaine. H. E. Kretchmer and J. Adriani.—p. 771.
Cardiac Arthythmias During Clinical Anesthesia. W. D. Bennett and M. Davis Jr.—p. 774.
Indications for Cesarean: 10 Year Review. R. N. Creadick.—p. 777.
Adrenocorticotropic Hormone Therapy as Adjunct to Surgery in Chronic Tophaceous Gout. P. D. Doolan, M. C. Cobey and L. H. Kyle. —p. 780.
Trauma to Urinary Bladder in Gynecologic Surgery: Analysis of 61 Injuries. A. Golden and L. Abraham.—p. 783.
Management of Cord Bladder. G. M. Roberts Sr., G. M. Roberts Jr., A. McCravey and W. E. Boehm.—p. 787.
*Panniculitis: Report of Cases. P. E. Jones, J. H. Lamb and L. Goldman. —p. 792.
Surgical Management of Cerebral Abscess Associated with Congenital Heart Disease. D. B. Sweeney and W. B. Patton.—p. 799.
Esophageal Spasm: Report of Unusual Case. N. Van Wezel.—p. 802.
Hormonal Studies in Diabetic Pregnancies. B. F. Keltz, E. C. Keaty and A. A. Hellbaum.—p. 803.
Physiologic Analysis of Psychosomatic Aspect of Peptic Ulcer. A. C. Ivy.—p. 814.

Intervertebral Disks.—Odell and co-workers removed one or more intervertebral disks in 455 patients for the relief of a low back pain and sciatica. Of these, 310 were followed by questionnaire. Satisfactory results were obtained in 277 patients (89.4 per cent) and poor in 33 patients (10.6 per cent). Relief of pain was complete in 136 patients (43.5 per cent). In 141 patients (45.4 per cent), there was slight intermittent pain that did not prevent their return to work. Spinal fusion was seldom done in this series. Myelography was not employed as a routine diagnostic procedure. The operative treatment of ruptured intervertebral disk is a satisfactory procedure when the patient is properly selected and the operation is performed by a surgeon who has learned to do it properly. The results in compensation cases are sufficiently good to warrant surgical treatment of patients with intractable low back and sciatic pain. Surgical intervention should not be advised for any of these patients until conservative treatment has been given a reasonable trial and has failed.

Panniculitis.—Jones and co-workers report the occurrence of panniculitis in three patients, one woman aged 52 and two newborn infants. Panniculitis is an inflammation of the panniculus adiposus. Its origin is undetermined. It was first described by Pfeifer in 1892, and 34 cases have been reported up to 1949. The authors' adult patient noted the appearance of nodules on her arms and legs in association with menstruation. The lesions broke down and underwent liquefaction necrosis, discharging a purulent, oily material after the patient was given a series of roentgen treatments to curb excessive menopausal bleeding. It seems possible that the radiation may have upset the hormonal balance and that this in turn changed the reaction in the fat tissue. The patient's course was progressively downhill, with new lesions appearing on the arms, abdomen, buttocks and thighs. Large pieces of necrotic tissue sloughed out of the affected areas. The patient died seven weeks after admission to the hospital. Necropsy showed fatty degeneration of the liver cells and necrosis. Fat necrosis of the newborn was observed in the two infants. The fever in the female infant was found to be due to an associated ear infection, while prolonged elevation of temperature and anemia in the male infant were apparently part of the fat tissue changes, since no secondary infection of the involved areas themselves or of other tissues was observed. The second infant underwent a severer type of change, with greater local disturbance, entailing more systemic reaction. The first infant's mother was a known diabetic, while fat embolism was suspected in the death of the mother of the second infant, although this was not confirmed by necropsy. A congenital abnormality of fat tissue enzymes may be the causative factor in cases of Weber-Christian disease in the newborn. Several authors advanced the hypothesis that some disturbance of the nutrition or of the metabolism of fat cells so changes the nature of normal fat that it acts as a foreign body, bringing about the inflammatory reaction and degenerative alterations characteristic of an invasion of foreign body giant cells.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Australian and New Zealand J. Surgery, Sydney

20:1-84 (Aug.) 1950

Medicine and the Humanities. J. Medley.—p. 1.
Cerebral Angiography in Neurosurgery. J. L. Dowling.—p. 11.
Gas Cysts of Intestine. E. S. J. King.—p. 25.
Treatment of Traumatic Ulnar Neuritis: Mobilization of Ulnar Nerve at Elbow by Removal of Medial Epicondyle and Adjacent Bone. T. King.—p. 33.
Ocular Palsies Associated with General Diseases. T. K. Lyle.—p. 43.
Hypospadias. K. B. Fraser.—p. 52.
Surgery of Inferior Oblique at Its Scleral Insertion. C. Colvin.—p. 59.
Treatment of Carcinoma of Breast. V. M. Coppleson.—p. 65.
Operation for Undescended Testes in Superficial Inguinal Pouch. C. Craig.—p. 69.
Four Unusual Complications of Partial Gastrectomy. J. P. Fleming and J. N. Ward-McQuaid.—p. 73.

British Journal of Tuberculosis, London

44:55-81 (July) 1950

Case of Malignant Thymic Tumour Associated with Chronic Pulmonary Tuberculosis. M. Davidson.—p. 55.
Arterio-Venous Aneurysm of Lung with Pulmonary Tuberculosis: Report of Case. C. K. Robertson.—p. 58.
Brompton Rehabilitation Clinic. N. C. Oswald.—p. 61.
Results of Pneumoperitoneum in Pulmonary Tuberculosis. E. W. Thompson Evans.—p. 67.
Massive Hæmothorax in Artificial Pneumothorax Treated with Streptokinase. R. G. Gauld and J. T. Harold.—p. 77.

Edinburgh Medical Journal

57:265-316 (July) 1950

Bronchial Adenoma. B. Dick.—p. 265.
Cancer and Translation of Influences into Causes. M. Copisarow.—p. 270.
Aetiology of Mental Illness. J. J. de Villiers.—p. 275.
Penicillin Inactivators and Susceptibility of Micro-Organisms to Penicillin. J. W. Czekalowski.—p. 281.
Unusual Neurological Symptoms in Polycythaemia Rubra Vera. A Grunberg, J. L. Blair and R. M. Rawcliffe.—p. 305.

Lancet, London

2:381-424 (Sept. 23) 1950

*Liquorice Extract with Deoxycortone-Like Action. J. A. Molhuysen, J. Gerbrandy, L. A. de Vries and others.—p. 381.
*Diagnostic Value of Increased Urinary Output of Noradrenaline and Adrenaline in Phaeochromocytoma. A. Engel and U. S. von Euler.—p. 387.
Refractory Hypochromic Anaemia and Steatorrhoea: Treatment with Intravenous Iron. C. F. Hawkins, A. L. P. Peeney and W. T. Cooke.—p. 387.
*Enhancing Effect of Cortisone on Tuberculosis in Mouse. P. D'Arcy Hart and R. J. W. Rees.—p. 391.
Treatment of Fibrositis with Adrenaline, Ephedrine, and Belladonna Creams. T. H. Howell.—p. 395.
Interpretation of Histamine and Insulin Tests in Patients with Peptic Ulceration. J. N. Hunt.—p. 397.

Licorice Extract with Deoxycortone-Like Action.—According to Molhuysen and his associates, Revers reported from the Netherlands that many patients with peptic ulcer improved after taking a proprietary preparation that consisted of a mixture of succus liquiritiae, fructus anisi and ferrum reductum. The majority of the patients became symptom free within a short time. Roentgen examination revealed that sometimes a deep ulcer of the lesser curvature disappeared within three weeks. Edema developed in one out of every five patients treated; many complained of a headache, and some noticed shortness of breath and abdominal pain. It was ascertained that the edema-producing factor was either glycyrrhizin or some substance precipitated with it by acid. The effects observed were similar to those following injection of large doses of deoxycortone or of injection of pituitary adrenocorticotropic hormone (ACTH). Apparently succus liquiritiae and the purified product contained a substance similar in action to that of one of the two hormones. The substance was active when taken by mouth. The authors studied the urinary output of sodium, potassium and creatinine after the administration of the hormones and of succus liquiritiae. They emphasize, especially in elderly patients, the harmful effects of potassium loss on the myocardium, which is overburdened by the increased venous pressure and by the considerable rise in blood pressure. The occurrence of cardiac asthma in subjects using licorice in sweets or in drugs is thus explained. The effect of a licorice extract taken by mouth is similar to that of injection of large doses of deoxycortone, but it lasts longer. The blood pressure tends to remain elevated after discontinuance of the drug unless a salt-free diet is used. The retention of water and sodium chloride during treatment with deoxycortone, pituitary adrenocorticotropic hormone or succus liquiritiae is self limiting, in subjects with normal heart and kidneys, because the rise in venous pressure leads to an increase in cardiac output, which induces a saline diuresis. A patient with Addison's disease who did not respond to pituitary adrenocorticotropic hormone did not respond positively to succus liquiritiae. There was a slight negative response. A patient with rheumatoid arthritis who responded favorably to pituitary adrenocorticotropic hormone showed an insignificant improvement, or none, after the use of succus liquiritiae.

Increased Urinary Output of Arterenol and Epinephrine in Pheochromocytoma.—According to Engel and von Euler, epinephrine (adrenalin®) and other catechol derivatives, when administered to man, are partly excreted in the urine in a conjugated form. Since catechol derivatives may be extracted from urine and estimated quantitatively in a comparatively simple way (Euler and Hellner, 1950), it appeared that an increased formation and output of such substances could be used as basis for the diagnosis of pheochromocytoma. The authors cite two patients who showed a greatly increased arterenol-epinephrine output in the urine. In the first case, a tumor situated at the bifurcation of the abdominal aorta and weighing 48 Gm. was removed. Histological examination revealed a typical pheochromocytoma. In the second case a tumor weighing 20 Gm. was removed from the left suprarenal. The relative contents of the catechols in the two tumors were also borne out by paper chromatography. The proportions of arterenol and epinephrine in the urine were approximately the same as in the tumors.

Cortisone and Tuberculosis in Mice.—D'Arcy Hart and Rees produced in mice a chronic pulmonary tuberculous infection sufficiently stable to serve as a test infection. Intravenous injection of 0.0006 mg. dry weight of human type tubercle bacilli produced in mice an infection that was relatively nonprogressive over six to 12 weeks and was characterized during this period by small, discrete, predominantly proliferative, pulmonary lesions containing scanty tubercle bacilli. A daily dosage of 0.25-05 mg. of cortisone given subcutaneously for two to three weeks during the stable period of this chronic pulmonary infection greatly exacerbated the disease, with a resulting high mortality. The voluminous lungs now contained large coalescing necrotic lesions with great numbers of tubercle bacilli. The more acute type of tuberculous infection in the mouse, produced by intravenous injection of 0.06 mg. of bacilli, was also aggravated by 0.5 mg. daily of cortisone, given from the first until the ninth day of infection. The chronic infection test proved highly satisfactory as a method for demonstrating increased susceptibility to tuberculosis due to cortisone. The acute infection test was more difficult to interpret. The effect of cortisone on murine tuberculosis is not likely to be due to depression of allergy or of collagen formation. Although human tuberculosis differs considerably from the murine form, and the present dosage of cortisone was relatively high, these observations should be kept in mind since tuberculosis in man may possibly be similarly aggravated.

Annales Paediatrici, Basel

175:223-284 (Sept) 1950

Hepatic Cirrhosis with Dwarfism and Hypophosphatemic Rickets in Early Childhood Contribution to Problem of So Called Hepatic Rickets A Eckstein —p 224
'Healing' of Infant with Pneumococcus Meningitis C de Lange —p 235
*Effect of Interrupted Penicillin Therapy in Acute Suppurative Otitis, with Special Reference to Otitis in Children T Jersild and F Kiørboe —p 250
Aerosol Penicillin Therapy for Infant and Children P Karlberg, G Sterner and G Wallmark —p 263
*Human Hyperimmune Serum and Streptomycin for Treatment of Whooping Cough in Infants and Young Children I Hatz and C Burckhardt —p 274

Interrupted Penicillin Therapy in Suppurative Otitis —The interrupted administration of penicillin employed by Jersild and Kiørboe consists in giving only two doses each day, instead of giving it every three or four hours, as is customary with other clinics The individual doses for infants less than 1 year old were 60,000, for those between 1 and 5 years, 90,000, for those between 5 and 15 120,000 and for those over 15 years, 150 000 The authors treated 266 patients with 385 suppurating ears The otitis was a sequel of scarlet fever in about two thirds of the patients Hemolytic streptococci were the organisms most frequently demonstrated in the ear secretions The organisms usually disappeared in one day in the children treated with penicillin but persisted for an average of 20 days in those not given this drug Discharge from the ear continued for 6 5 days in the treated and for 36 5 days in the untreated group Ear operations were required in 3 5 per cent of the treated and in 30 3 per cent of the untreated patients Follow-up revealed that a relapse of the lesion appeared within three months in about one fourth of all the patients The frequency of relapse was considerably higher for patients under three years than for those over three The hearing acuity appears to have remained normal in those patients who had no relapse Interrupted penicillin therapy has given excellent results in suppurative otitis in children

Human Hyperimmune Serum and Streptomycin in Whooping Cough —Hatz and Burckhardt report observations on 50 children with whooping cough, aged up to two years Streptomycin was given to 25 of these Streptomycin and human hyperimmune serum was given to the other 25 patients The serum was obtained from healthy adults who had been immunized with a concentrated pertussis vaccine and who had whooping cough The gamma globulins of 20 cc of the serum of these persons are contained in 2 5 cc of the serum The results obtained were compared with a group of 50 of the same age (up to two years), who during the years 1946 1947 were treated chiefly with ascorbic acid The number and severity of attacks were greatly reduced, and the general health and appetite quickly improved in the group treated with streptomycin alone and these results were accentuated in the group treated with streptomycin and human hyperimmune serum When complications did arise, they tended to disappear more quickly in the streptomycin treated group The only side effects observed were rashes in six cases These were either rubeoliform or scarlatiniform Treatment with hyperimmune serum and streptomycin combined is to be recommended in young infants and for grave complications of older children

Deutsche medizinische Wochenschrift, Stuttgart

75:1061-1108 (Aug 25) 1950 Partial Index

Examination of Circulatory Function in Surgery F Meissner —p 1061
Intestinal Gangrene H J Lossl —p 1066
*Action of Caffeine in Patients with Hypertension I Sebok —p 1067
Amyotrophic Lateral Sclerosis After Polyarthritis W Kohler —p 1070
*Etiology of Puerperal Mastitis Experimental Studies H Muth —p 1072
Postoperative Cutaneous Emphysema After Laparotomy R Mey —p 1074

Action of Caffeine in Hypertension —According to Sebok, it is the accepted opinion that caffeine causes a general vasoconstriction and an increase in blood pressure In the brain heart and kidney, it produces vasodilatation The author attempted to ascertain whether the hypertensive effect of caffeine was a degree sufficiently great to cause caffeine to be withheld from patients with hypertension Administration of 0 05 or 0 1 Gm of caffeine to 31 patients with hypertension had the effect of lowering the systolic and the diastolic blood pressures The fall amounted to from 10 to 80 mm of mercury in the systolic pressure Maximal decrease in pressure was usually observed from 40 to 50 minutes after the administration of caffeine In about three fourths of the patients the pressure had not returned to the initial values two hours later Administration of caffeine in controls with normal blood pressure produced either a slight elevation in pressure or a reduction, as in the hypertensive patient These investigations and the fact that caffeine dilates the coronary vessels and thus improves the metabolism of the myocardium suggest that there is no justification for interdicting either caffeine or coffee in patients with hypertension

Etiology of Puerperal Mastitis —Muth states that his investigations and those of others indicate that the Staphylococcus aureus hemolyticus is the most frequent cause of puerperal mastitis Bacterium coli and hemolytic streptococci rarely cause mastitis The Staph aureus hemolyticus is frequently found in the nasopharynx of infants Some investigators assume that this organism is transferred to the maternal breast from the mouth of the infant and serves as the causal factor in mastitis Bacteriologic studies were made at the author's clinic on 200 puerperal women and their infants Smears were obtained from the nose and pharynx of 100 women during delivery and 48 hours later and from their infants 48 hours after delivery In another group of 100 women the bacterial flora of the maternal nasopharynx, the nipple and the vagina was studied during delivery and seven days later and was compared with that of the nasopharyngeal flora of the infants seven days after birth Seven days after delivery Staph aureus hemolyticus was found on 87 per cent of the maternal nipples and at the same time in the nasopharynx of 99 per cent of their infants Further observations suggested that the staphylococci were transferred from the nasopharynx of the infants to the nipple The infants seem to receive this organism from the nasopharynx of the mothers or the nurses or from the vagina of the mother Measures designed to interrupt this cycle promise to be of prophylactic value The author cites one investigator who reduced the incidence of mastitis to 0 1 per cent by applying a sulfathiazole powder to the nipples of nursing mothers

Monatsschrift fur Kinderheilkunde, Berlin

98:329 368 (Aug) 1950 Partial Index

*Toxoplasmosis in Infants H Walenz and A Westphal —p 329
Physical and Bacteriologic Studies on Adsorbent Chemotherapeutic Substances That Contain Pectin Their Use in Dyspepsia in Nurslings M Debusmann —p 336
Gastrospasm Therapeutic Trials with Ultrasonic Waves D Helbig —p 345
Etiology and Therapy of Seborrheal Dermatitis H Lemke —p 350

Toxoplasmosis in Infants —Walenz and Westphal observed during the past year eight infants with suspected toxoplasmosis The diagnosis could not be corroborated in four Of the four patients with proved diagnosis of toxoplasmosis, three had hydrocephalus, alterations in the cerebrospinal fluid neurological symptoms and lesions in the eyegrounds These symptoms were described in the literature as indicative of congenital toxoplasmosis In the fourth patient, only cerebrospinal fluid changes and chorioretinitis suggested toxoplasmosis The intracerebral calcifications mentioned in the literature as being characteristic of congenital toxoplasmosis could not be ascertained by roentgenoscopy in these patients Serologic verification of toxoplasmosis was possible in all four by means of the Sabin-Feldman serum dye test Examination of blood specimens gave positive titers in all the infants and their mothers This fact suggests intrauterine transmission The parasites of toxoplasmosis in two of the infants could be demonstrated either directly from the sediment of the cerebrospinal fluid or after concentration in several animal passages Although toxoplasmosis may attack any organ, in infants the parasite seems to have greatest affinity for the central nervous system Various therapeutic methods have proved largely ineffective Intrauterine death results in many cases in which toxoplasmosis is transmitted from the mother to the fetus If the pregnancy is carried to term, hydrocephalus and other serious lesions often cause death during early infancy

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Multiple Sclerosis and the Demyelinating Diseases. Proceedings of the Association, December 10 and 11, 1948, New York. Research Publications, Association for Research in Nervous and Mental Diseases, Volume XXVIII. Editorial Board: Henry W. Woltman, M.D., H. Houston Merritt, M.D., S. Bernard Wortis, M.D., Clarence C. Hare, M.D. Cloth. $12 Pp. 675, with 153 illustrations. The Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1950.

This is the second volume on multiple sclerosis which has been issued by the Association for Research in Nervous and Mental Diseases, the first having appeared in 1921. This volume consists of 40 papers contributed by 68 authors, covering the general subjects of history, ecology, etiology, blood flow, anatomy and chemistry, pathology, clinical aspects and treatment and rehabilitation in multiple sclerosis. The foreword, by H. Houston Merritt, S. Bernard Wortis and Henry W. Woltman, is an admirable summary of the present status of the multiple sclerosis problem, although it presents as established fact some of the wholly tentative statistics on incidence and prevalence, based on a single study made in Rochester, Minn.

Walter Timme, in the first paper in this volume, discusses the history of multiple sclerosis and summarizes the findings and conclusions of the 1921 meeting of the association. This paper serves as an excellent introduction and background to the remainder of the volume. In the section on ecology of multiple sclerosis (which would ordinarily be called epidemiology), Charles C. Limburg presents an analysis of mortality statistics; Alexander R. MacLean, Joseph Berkson, Henry W. Woltman and Louise Schionneman report on a study of the population of Rochester, Minn., and Lawrence C. Kolb reports on studies made in the Eastern Health District in Baltimore. In general, Limburg agrees with the hypothesis that mortality from multiple sclerosis is positively associated with a cold climate, although the evidence he presents is not entirely convincing. These three papers present varying estimates of the prevalence of multiple sclerosis of 35, 55 and 15 cases per 100,000 population. Kolb states that in the Eastern Health District there were twice as many patients, over a 10 year period, seeking aid for multiple sclerosis as for residual paralysis following acute poliomyelitis. He notes that there were little or no attempts at rehabilitation, many patients occupying hospital beds for long periods, and that the medical services provided for these patients were chiefly diagnostic. The discussion of these papers brought out the observation that there was apparently considerable difference in disability and mortality between private patients and clinic and ward patients.

Hans H. Reese discusses the theories concerning the etiology of multiple sclerosis, points out the probability that the etiological factors are multiple and discusses the various theories under the headings of infection, venular thrombosis, vascular spasm, allergy and nutrition. Roland P. Mackay, in a discussion of the familial incidence, concludes that there is a familial factor which is insufficient by itself to produce the disease. Tracy Putnam's review of the pathogenesis of multiple sclerosis, if accepted, points to injuries, infections, a cold, damp climate and pregnancy as factors precipitating acute exacerbations. In treatment, Putnam recommends the use of bishydroxycoumarin (dicumarol®) and diphenylhydantoin (dilantin®) sodium as promising agents in prevention of acute episodes. (A more recent critical review of the subject by George A. Schumacher [The Journal, Aug. 5, 1950, p. 1241] rejects the evidence for these conclusions as inadequate.) The clinical features of multiple sclerosis are well analyzed in a report by Sidney Carter, Daniel Sciarra and H. Houston Merritt of 56 cases proven by autopsy.

An interesting discussion of the role of psychodynamic factors in the etiology of multiple sclerosis is comprised in three papers on the subject by Roy R. Grinker, George C. Ham, Fred P. Robbins; by R. Harrower, and by Francis J. Braceland and Mary E. Giffin. Grinker and his associates describe what they consider a characteristic premorbid state of multiple sclerosis as that of "great immaturity since early infancy," a strict mother, a nondominant father, absence of warm relations with other people, no free anxiety and a precipitating factor for overt symptoms of some major change in the life situation. Braceland and Giffin, on the other hand, conclude that there are no specific characterologic personality changes in multiple sclerosis Harrower, on the basis of a battery of psychological tests, concludes that patients with multiple sclerosis show less anxiety over their disability, more acceptance of dependency, less awareness of conflict and an excessive cordiality, as compared with control groups. Otto R. Langworthy, in his paper on maladjustment problems in multiple sclerosis, concludes that "we have no clear evidence at present that emotional factors can contribute to the development of the lesions of multiple sclerosis through change in blood vessels or otherwise."

This is a volume well worth reading for anyone interested in the problem of multiple sclerosis. It is to be hoped that a summary of the apparently established facts, especially with regard to diagnosis and prognosis, will be made available to the general practitioner, who very much needs to know of the importance and of the relatively more hopeful aspects of this widespread disease.

Chirurgie der Urogenitalorgane: Indikation und Technik. Von Prof Dr. H. Boeminghaus. Band I: Nieren, Harnleiter. Band II: Blase, Prostate, Samenblasen, Hoden, Nebenhoden, Samenstrang und Skrotum Band III: Penis, Harnrohre, Anhang, Neuro-chirurgische Eingriffe bei Erkrankungen der Urogenitalorgane. Cloth. Pp. 251; 243; 228, with 519 illustrations. Werk-Verlag Dr. Edmund Banaschewski, (13b) Bad Worishofen, 1950

Book 1 describes surgery of the kidneys and ureters; book 2, surgical treatment of the urinary bladder, prostate, seminal vesicles, testes, epididymis, spermatic cord and scrotum; book 3, surgical procedures employed for pathologic conditions of the penis and urethra. An appendix on neurosurgical procedures in therapy of the urogenital apparatus is included.

It is obviously impossible to enter into a detailed analysis of all the procedures described. However, the over-all impression, after thorough reading, is favorable, for the work is of a practical nature, dealing particularly with the indications for operation in cases of diseases of the genitourinary apparatus and the surgical technic best adapted thereto. It is obvious, as the author points out, that didactic text and artistic illustrations, no matter how excellent in themselves, are never sufficient to create a surgeon; practical experience must supplement theoretical knowledge. Evaluated on these premises, the work serves an excellent purpose. The text is thorough, and the illustrations profuse. Most of the latter are diagrammatic, but all are adequate and clear.

It seems that, since the war years restricted scientific intercourse in European countries, there is a keen desire among surgeons there to keep abreast of modern surgical procedure The fact is well evidenced in this work, for the procedures are admirably presented, without padding. The literature is abstracted exceptionally well; in the section on surgery of the prostate, Millin's procedure is particularly well described and illustrated. In his discussion of urinary incontinence, the author does not limit himself to consideration of surgical procedures adapted to the male patient but includes those employed for the female patient as well. In the appendix, one finds ably presented sections dealing with elimination of pain in operations on the kidney, bladder, prostate, rectum and external genitalia, with the approach in treating oliguria, anuria and uremia and with various procedures used in the treatment of impotentia generandi. A conservative analysis of the so-called reactivation procedures for senility is also given. The experimental work of Harms, Steinach, Sand and others is thoroughly analyzed, with the conclusion that transplantation of testicular material will give results only when there is definite evidence of organic failure of internal secretion of the testes. A conservative attitude is taken here, as well as in analysis of the results of the Steinach procedure. Postoperative complications are well presented, as are the neurosurgical procedures related to pathological conditions of the genitourinary apparatus, as: renal denervation, the surgical treatment of hypertension as related to renal pathology, resection of the hypogastric nerves, chordotomy and alcohol injections for the relief of pain.

Those who read German will find this work a worth while addition to their libraries. This applies to the student, the general surgeon and the specialist as well.

B.C.G. Vaccination in Theory and Practice. By K. Neville Irvine, D.M., M.A., B.Ch., Medical Superintendent, Smith Isolation Hospital, New York City. With a Foreward by Konrad Birkhaug, B.A., M.Sc., M.D., Chief of the B.C.G. Laboratory, New York State Department of Health, Albany. Cloth. $3; 9s.6d. Pp. 130. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, 48 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1949.

Since the introduction of BCG vaccine and its first use in 1922 in infants, probably no preventive measure for the control of tuberculosis has aroused so much controversy. This book attempts to review the literature on BCG vaccination and to give practical details of the technic of vaccination. The evolution of the BCG strain is traced. The theory underlying BCG vaccination is stated, and the various methods of vaccination used at different centers are detailed. The stability of the virulence of BCG and the safety of the vaccine are considered. There is also an effort to investigate the degree of resistance produced by the vaccination, and consideration is given to the practical aspects of BCG vaccination. The material is clearly presented throughout the book.

There are, however, many who will disagree with the author's statement that "At long last BCG vaccination has been universally accepted as a valuable weapon for our armament in the fight against tuberculosis." The author leaves unanswered the question of the efficacy of BCG vaccine but believes that the exact degree of efficacy is important only if the BCG vaccine is to be used to replace any of the well accepted antituberculosis measures.

Tissue Culture Technique. By Gladys Cameron. Second edition. Cloth. $4.20. Pp. 191, with 51 illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1950.

Contrary to the popular belief that tissue culturing is a recent innovation in medical science, the fact is that in vitro growth of tissues was accomplished in the latter part of the last century. Improved and modified technics have subsequently been developed according to the type of cellular activity under study.

Tissue culture consists of aseptic transfer of tissues from a living organism to an in vitro environment which provides optimum conditions of nutrition, aeration and temperature for cell proliferation, organization and function. Catabolic products necessarily must be removed to prevent death of the cells, and nutrients must be supplied in excess. The author obviously is cognizant of the difficulties encountered in the practical procedures outlined and has painstakingly incorporated details of technic which both the beginner and advanced worker will appreciate. Too often technical details are not given in published procedures; this results in waste of materials, loss of time and frustration of the investigator. The author stresses the need for knowledge of cytology to insure proper interpretation of results obtained by these technics.

The volume is a practical laboratory guide for the culture of tissues. It emphasizes the fact that the technics are relatively simple and require little specialized equipment but demand technical skill and knowledge of normal cytology of the cultured material. In addition to the technical procedures, the volume contains chapters on micromanipulation of tissue cultures, histological technics and photomicrography of tissue cultures. An extensive bibliography and a list of suppliers of special equipment are appended.

The Diagnosis of Salmonella Types. By F. Kauffmann, M.D., Chief, International Salmonella Center, State Serum Institute, Copenhagen, Denmark. Publication Number 62, American Lecture Series, A Monograph in American Lectures in Tests and Techniques. Edited by Gilbert Dalldorf, M.D., Director of the Division of Laboratories and Research, New York State Department of Health, Albany, New York. Cloth. $2.25. Pp. 86. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

Diarrhea, typhoid and paratyphoid fevers, food poisoning, bacteremia, bone infections and even infections of the central nervous system are manifestations of the pathogenicity of the Salmonella group in man. The organisms are also found in rodents, horses and birds, including chickens. Differentiation of typhoid from paratyphoid fever and the incrimination of the agents responsible for gastroenteritis caused by Salmonella necessarily are dependent on isolation and identification of the organisms. Salmonella typing has considerable epidemiological value. Immunologic differentiation of these organisms has been emphasized since the 1920's; prior to that time they were separated on the basis of physiological characteristics. An absurd number of new species have been described solely on the basis of immunologic differences; it now appears more logical to subdivide the serotypes into biochemical types by biochemical methods, and this is the author's approach. This handbook incorporates details of methods for preparing antigens, vaccines and immune serums, performance of agglutination and absorption tests, tables for identification of antigens and methods for serologic diagnosis. An appended section indicates types of media, with formulas which the author considers optimum for the procedures employed. The author is an authority in this field, having been appointed chief of the International Salmonella Center at the State Serum Institute, Copenhagen, Denmark, established by the World Health Organization in 1948. Several American state health departments have been designated to collaborate with the International Center for the collection and identification of Salmonella strains.

Counseling the Handicapped in the Rehabilitation Process. By Kenneth W. Hamilton, Associate Professor of Social Administration, Ohio State University, Columbus. Cloth. $3.50. Pp. 296, with 4 illustrations. The Ronald Press Company, 15 E. 26th St., New York 10, 1950.

This is a textbook written by a well qualified teacher in the field of rehabilitation. The book is written for "all who counsel the handicapped on their problems—social workers, psychologists, physicians, therapists, and employment counselors." It is documented fully and has many interesting illustrations.

The text emphasizes the role of the rehabilitation counselor in bringing to the use of the disabled person "individualized and coordinated professional services." Emphasis is placed on considering the total needs of the disabled person—physical, mental, social, vocational and economic. The book begins with a discussion of the nature and purpose of rehabilitation, then covers the rehabilitation process and development of community resources and finally treats the problem of the evaluation of the results of rehabilitation. As may be apparent, the rehabilitation theme is developed logically and in this regard probably represents the best systematization to appear to date. There is an interesting treatment of the distinction between disability and handicap, basic in the development of a rehabilitation program. Physicians may feel that insufficient attention is given to medical-physical factors in chapter 4 where areas to be studied are discussed, but close perusal will show that there is as much coverage as is given to psychological and emotional, educational, social and vocational factors. Particularly important to physicians interested in community aspects of rehabilitation are chapters 7 through 10, dealing with such topics as community organization, the severely handicapped in the local community and the rehabilitation center. The central theme of the book is contained in chapter 8, on the rehabilitation counselor. Here, stress is placed on the need for special training programs for this new specialty for which current programs in social casework and vocational counseling are inadequate in the opinion of Professor Hamilton.

Some may disagree with the emphasis given to the selection of suitable employment as the "crowning achievement of the rehabilitation process" and feel that sufficient recognition of self-care as a goal is not appreciated fully. However, Professor Hamilton is concerning himself with the majority of disabled persons and demonstrates adequately his understanding of setting other goals for the severely disabled. This book should be found in the libraries of any physician interested in the process of rehabilitation at the community level. Its systematic approach to the problem is to be recommended highly.

The Cerebral Cortex of Man: A Clinical Study of Localization of Function. By Wilder Penfield, C.M.G., M.D., B.Sc., Professor of Neurology and Neurosurgery, McGill University, Montreal, and Theodore Rasmussen, M.D., Professor of Neurological Surgery, The University of Chicago, Chicago. Cloth. $6.50. Pp. 248, with 121 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1950.

This book is based on the Lane Medical Lectures which Penfield gave in 1947. Four hundred craniotomies performed between 1928 and 1947 presented the opportunity to stimulate various parts of the cerebral cortex with electrical currents and to record the objective (movements) and subjective effects. The results of these studies are presented clearly and with the necessary details. Objective results and interpretation are sharply separated. The investigations give a very complete description of the organization of the sensorimotor cortex. The primitive character of the movements is emphasized. They are "not more complicated than those the newborn infant is able to perform." Evidence of the existence of a secondary motor cortex is also presented. A certain muscle may show widely separated cortical foci when it is used in different functional groupings. Central overlap exists clearly in precentral and postcentral gyrus. The authors assume that the diencephalon plays an important role in the elaboration of movements. A considerable part of the book is devoted to observations on the effect of stimulation of nonmotor areas. Perhaps the most interesting phenomenon which Penfield and Rasmussen discovered is the fact that electrical stimulation of the temporal lobe elicits illusions, hallucinations and dreamlike conditions which suggest that the temporal lobe plays an important role in memory. Whereas stimulation of the sensorimotor parts of the brain results only in primitive movements or sensations, that of the temporal lobe activates "acquired synaptic patterns." The book is one of the most important contributions to neurosurgery and physiology which has appeared in many years. It is beautifully printed and illustrated.

Human Milk: Wartime Studies of Certain Vitamins and Other Constituents. By S. K. Kon and E. H. Mawson. Medical Research Council Special Report Series No. 269. Paper. 4s. Pp. 188, with 19 illustrations. His Majesty's Stationery Office, York House, Kingsway, London, W.C.2, 1950.

This study is an important contribution. It advances greatly our knowledge of the composition of individual samples as influenced by such factors as the mother's state of nutrition, the stage of lactation, the milk yield, the season of the year, the age and parity of the mother. The report is well planned for ready reference. It is divided into two chief sections. One deals with the constituents of human milk and the other with the relation between the constituents studied and nutritional standards. Tables and figures are used to good advantage. The language is clear and concise and easily read. Each subsection is followed by a bibliography of related studies. The report is summarized in a few short pages at the end of the book.

It is impossible to illustrate the many points of special interest to pediatricians, obstetricians and public health workers which are brought out in this book. However, the book is inexpensive and can be easily obtained by all professional persons who are concerned in any way with the problem of lactation. Nevertheless, for purposes of illustration, attention is called to the fact that it may be misleading to apply to human milk conclusions drawn from the study of cow's milk. For example, the vitamin A content of human milk, which is initially high, falls rapidly the first three weeks and then falls gradually, until it reaches one third of the original value. On the other hand, thiamine increases rapidly until it levels off at the fifth week. This is the reverse of what happens with the cow. Seasonal variations are likely to be noted in the vitamin A content of cow's milk, whereas this does not seem to be true of human's milk. This study is an impressive achievement.

Saints, Sinners and Psychiatry. By Camilla M. Anderson, M.D. Assistant Clinical Professor of Psychiatry, University of Utah, Salt Lake City. Cloth. $2.95. Pp. 206. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St. London, W.C.2; 2083 Guy St., Montreal, 1950.

This book appears to confirm the idea that under the critical eye of the psychiatrist "normal" as applied to behavior of the struggling human race is an adjective tolerated only in honor of tradition. Unlike so many authors in this field, Anderson does not hem and haw in polysyllabic jargon. She says directly what she wants to say, in language easy to understand. Case histories are presented without customary drawn-out discussion; they portray the essentials in one or two paragraphs, without the irrelevant fantasy and romance so frequently encountered in psychiatric reports.

The book presents a novel and sensible interpretation of the dynamics of human behavior. It postulates that behavior is a culmination of psychological structure and function. Structure involves the individual as a personal entity with all the psychological components of a human being striving toward recognition. Function is an expression of these components, and the cumulative result sets the pattern of behavior. Illustrations of this mechanism follow:

Structure	Function
I am the baby	I get special consideration
I am the oldest	I get the hardest jobs
I am smart	I get approval
I am dumb	I get picked on
I am a nuisance	I get attention
I am honest	I get approval
I don't trust people	I don't get disappointed
I am a sissy	I get Mamma's love
I am selfish	I get something
I am different	I don't have to compete
I am fatherless	I mean more to women
I am awkward	I am relieved of many jobs
I am mistreated by father	I get more from mother

Throughout childhood, behavior is modeled in accordance with the approval-disapproval reactions shown by the persons significant to the growing organism. Parents, siblings, grandparents, aunts, uncles, teachers and playmates all exert their influence on the ultimate character of the person. And being, as everyone was and indeed remains, at the mercy of so motley a combination of personalities, is it any wonder that everybody is neurotic? Saints or sinners, we are all the product of our early environment—a concept not too different from the Watsonian prince-pauper conditioned-reflex theory of a quarter of a century ago.

The book was apparently meant for popular use. The physician, however, will find it interesting. It is full of wholesome material for daily application in sociomedical study and psychosomatic medicine, and can be recommended for its instructive features and practical philosophy as much as for its delightful style and easy readability.

Studies in Population: Proceedings of the Annual Meeting of the Population Association of America at Princeton, New Jersey, May 1949. Edited by George F. Mair. Paper. $2.50. Pp. 169. Princeton University Press, Princeton, New Jersey, 1949.

This book will be of interest and value to those persons interested in our current and future population problems and trends. The five sections of the book represent the five sessions of the meeting: two on current problems and technics, one on food resources and two on fertility. The first section, Application of Demographic Data to Current Problems, contains papers on the relative importance of mortality and divorce in the United States, on the length of the working life and on a series of illegal abortions. One speaker pointed out that, in view of the rapid rise of the divorce rate during recent years, it is significant that the trend in total marital dissolutions has shown a less alarming picture; the rise in divorces is being offset by the continued decline in marriages dissolved by death. Typhoid fever, tuberculosis and the hazards of childbirth, "the great homebreakers of the past," have been virtually eliminated by recent advances in medical science, sanitation and public health. Another speaker pointed out that, on the basis of census data, the average male worker of 20 years of age in 1940 had a life expectancy of 46.8 years and a labor force life expectancy of 41.4 years.

Included in the second section, Tools for Demographic Research, is a brief explanation of the sampling method used in the current population surveys of the Bureau of the Census. In this monthly "miniature census," about 25,000 households in 68 counties are interviewed for information on a variety of subjects. The papers also concerned the various recent proposals for modifying the net reproduction rate and the use of census tracts and divisions in the recording of the 1950 census data in the state of Washington. Soil resources and potential food supply and their effects on population increases are discussed in the papers in the section on Resources for the World's People. One speaker assures us that "we need have no fear in this country of declining levels of food consumption because of past abuse of our lands—not even, as will appear presently, after allowing for all the exports other nations will buy from us" (page 54). Another warns that ". . . even if we could increase food production for the next few decades twice as fast as appears probable we cannot be at all certain that when the end of such a period arrived most men would be any better off than they now are, unless, in the meantime, we had learned how to control our own conduct as regards the rate of reproduction" (page 92).

In the section Value Systems and Human Fertility are included analyses of the reproductive mores of the Asian peasants and of the people of the Middle Ages which attempt to show that fertility rates cannot be studied apart from the total cultures. In one paper it is pointed out how the Catholic value system influences the fertility aspects of behavior.

In discussions on the Future Course of Research in Fertility, a physician presents current medical thinking on the "physiologic aspects of the control of fertility" and the more important advances in this area. Other speakers pointed out the measures and methods to be used in future studies of fertility as well as some of the fields in which study is needed.

The American Family: A Factual Background. Report of Inter-Agency Committee on Background Materials. National Conference on Family Life, May 1948. Paper. Pp. 457. U. S. Government Printing Office, Washington, D. C., 1949.

The general purpose of the Conference on Family Life was to discover specific means by which the American family might be strengthened for the benefit of its individual members and society. This volume contains material on the basic family and population statistics; the family in the American economy, education, health, housing, legal status, income maintenance and social services to families.

The term "family," as revised by the Bureau of Census, is "A group of two or more persons living together and related by blood, marriage, or adoption; all persons residing together and related to each other are regarded as one family." Population and family trends, marriage and divorce rates, mortality statistics and migration statistics are among the many items covered in the first chapter. Chapter 2, The Family in the American Economy, discusses trends in the labor force participation, the number of workers per family and the number of women workers in the family. Recent changes in family income are treated in this volume, and the trends of consumer expenditures for various products are presented in the form of tables. Statistics on the relation between education and marriage were developed, such as education as it relates to family living. Trends in school attendance of children and shifts in distribution are treated at great length, with the inclusion of many tables presenting data by age and by states. Family health has been related to such factors as prenatal influences, infancy and childbirth, environmental sanitation, housing conditions, income and the receipt and costs of medical care. There are tables of the percentages of births in hospitals in each state, infant mortality by state and the number of children crippled by various diseases. The conditions and facilities of the housing of families are discussed in chapter 5, Housing for American Families. Also included in this chapter is information on the amount of overcrowding, size of households, impact of wars and trends toward rural, nonfarm areas. Estimates of needs of future housing have also been made. Chapter 6, Legal Status of the Family, discusses the property rights and powers of contract of husband and wife, the custody, control and earnings of minors, laws affecting the school attendance, annulments and divorce. Income maintenance programs regarding social insurance and public assistance are presented in chapter 7. Also discussed in this chapter are the family and child welfare services, as well as various other social services to families. Many tables are presented of mortality and natality statistics, family income and distribution of personal income, consumer expenditures, school enrolments, number of teachers in schools, dwelling units and various insurance plans. Most of the statistics are for the years 1945, 1946 and 1947, with some historical trend tables. This volume contains a wealth of knowledge about the various factors relating to the American family.

Elements of Medical Mycology. By Jacob Hyams Swartz, M.D., Assistant Professor of Dermatology, Harvard Medical School and Postgraduate School, Boston. In Collaboration with Ethel M. Rockwood, M.D., Dermatologist, Massachusetts General Hospital, Boston. Introduction by Fred D. Weidman, M.D., Professor of Dermatological Research, University of Pennsylvania, Philadelphia. Second edition. Cloth. $5.50. Pp. 240, with 138 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1949.

Problems of the pathognomy, diagnosis and therapy of fungus diseases are encountered daily by physicians; their resolution remains one of the engimas of modern medicine. Relatively few American textbooks have been published on the subject during the past two decades, and none adequately covers the field of mycology. With the advent of chemotherapeutic agents, including the antibiotics, increased interest in medical mycology has been manifested by physicians in the hope that cures of fungus diseases could be effected by those agents. With the exception of the sulfonamides and penicillin for the treatment of actinomycosis, none of those agents has proved to be effective against surface or systemic fungus infections. Therapy of the majority of these diseases has changed little throughout the years; cures of the systemic infections are comparatively rare.

This volume represents a handbook of medical mycology and will prove a valuable addition to the reference volumes on every physician's bookshelf and in clinical laboratory libraries. It is not a complete reference book but contains practical information on the pathogonomy, diagnosis and therapy of many pathogenic fungi. In many respects it supersedes the "Manual of Clinical Mycology," published in 1945 under the auspices of the National Research Council. The author, a disciple of Carroll W. Dodge, has followed the latter's classification of the fungi and has arranged the subject matter, including an excellent chart of the pathogenic fungi, according to fungus genera. The chapter on the diagnosis of fungus infections by specific procedures reflects the interest and practical experience of the author in the laboratory aspects of the subject.

Epidemiology in Country Practice. By William Norman Pickles, M.D., Medical Officer of Health, Aysgarth Rural District, Yorkshire. With a Preface by Major Greenwood, F.R.S., D.Sc., F.R.C.P., Professor of Epidemiology and Vital Statistics in the University of London. Re-issued 1949. Cloth. $2.50. Pp. 112, with illustrations. The Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1939.

This book was first published in May 1939, after which the demand for it was regular and continuous until April 1941, when the entire bound and sheet stock and the type were destroyed by enemy action. In response to numerous requests, the publishers had it entirely reset and republished in virtually the same form as when first issued. The reader who expects to find epidemiological data on large numbers of cases will be disappointed. It might well be called an essay on epidemiology in country practice. It includes several papers published by the author from time to time in medical journals. It is intended for the general practitioner and illustrates well that there is a vast amount of epidemiological information to be gleaned from clinical observation in one's own practice.

Major Greenwood says in the preface, "Budd was one of the last of those physicians who did their own epidemiology, and were not content to sow for others to reap. We have, indeed, had to wait a long time for a second Budd but (in Dr. Pickles) I think we have found one." The author has written as the local health officer and general practitioner in an isolated rural community. His close association with the people and his intimate knowledge of them gave him the unique opportunity to make and record firsthand observations on the entire course of diseases as related both to the individual and to the community. This is particularly true with regard to unusual opportunities to determine definitely the incubation period in many patients. The lack of large numbers of observations is offset by the completeness and thoroughness of those made by the author in establishing his own epidemiology.

A practical common sense point of view is obvious. The opinions expressed as to management of communicable diseases, the relative value of hospitalization, quarantine, isolation and other procedures are as sound now as they were when they were written. The commoner communicable diseases are described as they occur in the author's practice. There are interesting chapters on epidemic catarrhal jaundice and epidemic pleurodynia (myalgia). In addition to the technical information the book contains, it has much of historical interest; and the wit, philosophy and common sense woven in make it pleasant and interesting reading. If it creates a desire in the general practitioner to study the course of communicable diseases in the patient and the community, as the author did, it will have served a good purpose. The paper and printing are good; there is a bibliography and a complete index.

Aus den Anfängen der Psychoanalyse: Briefe an Wilhelm Fliess, Abhandlungen und Notizen aus den Jahren 1887-1902. Von Sigm. Freud. Cloth. 30s. Pp. 477, with illustrations. Imago Publishing Co., Ltd., 10 Nottingham Place, London W.1, 1950.

This book contains selections from a correspondence between Sigmund Freud and the Berlin physician and biologist Wilhelm Fliess and some notes and manuscripts on the etiology of the neuroses, anxiety, melancholia and hysteria. The letters presented here are those which Freud addressed to Fliess. They were discovered in an antique book market together with other effects of Fliess. The letters which Fliess sent to Freud have not been found. Freud was between 31 and 46 years of age when these letters and manuscripts were written. This was the time when he first established himself as a specialist for nervous diseases. He discussed with his friend Fliess his plans, successes and failures. The letters contain not only those ideas which finally were elaborated into Freud's psychoanalytic theories but also the bypaths and false starts, thoughts and conclusions which he later rejected. Marie Bonaparte, Anna Freud and Ernst Kris arranged this material for publication. They selected 168 communications of a total of 284, giving emphasis to those which were concerned with the scientific investigations of the writer and those which throw light on the social and political conditions of the time. They are aware of the fact that Freud would not have published any of this material, for he never presented to the public anything that was not complete. They feel, however, that this material, which was saved from destruction by a lucky accident, throws new light on the development of the theory of psychoanalysis and that it will be of interest to those who are familiar with Freud's published works.

The Nutritional Improvement of Life. By Henry C. Sherman. Cloth. $3.75. Pp. 270. *Columbia University Press, 2960 Broadway, New York 27, 1950.*

Dr. Sherman has drawn on his lifetime of writing and research in the field of nutrition to present a comprehensive review of the advances made in the science of nutrition up to the middle of the twentieth century. The language used is simple and nontechnical. The significance of the discoveries of nutritional research is presented rather than the technics employed. As Dr. Sherman remarks in the preface, "Nutrition is everyone's adventure. This book brings out the human implications. It differs from others in its field—and from scientific books generally—in that it deals less with how the advances of yesterday were made, and more with what they can mean for today and tomorrow."

The first part of the book follows the progress of nutrition throughout the half century of its recognition as a distinct science. The latter part of the book contains an excellent discussion of current nutritional developments and their implications for the betterment of life. An appendix contains a summary of the 1946 World Food Survey of the United Nations' Food and Agriculture Organization. A second appendix gives records of actual meals which illustrate how the present day knowledge of nutrition can be applied to an average twentieth century diet. A carefully selected bibliography which includes abstract as well as original references concludes the book. Anyone who has an interest in the science of nutrition will find this book of value. Its nontechnical language will appeal particularly to laymen and students. It is an excellent book for the physician to recommend to those of his patients who desire an easily read reference on nutrition and its effect on human life.

The Physiology and Pathology of Exposure to Stress: A Treatise Based on the Concepts of the General-Adaptation-Syndrome and the Diseases of Adaptation. By Hans Selye, M.D., Ph.D., D.Sc., Professor and Director of the Institut de médecine et de chirurgie expérimentales, Université de Montréal. Preliminary edition. Paper. $14. Pp. 792, with illustrations; 203R. Acta Endocrinologica, Inc., 5465 Decarie Blvd., *Montreal 29, 1950.*

The author has played a primary role in the development of the theory with which this impressive volume deals. In this carefully developed treatise, the principal facts and theories on which the general adaptation syndrome concept is based are thoroughly discussed. Definitions of terminology used are outlined, and the various alarming stimuli or factors which elicit the syndrome are described. Whether one agrees with the concept of the syndrome or not, work with pituitary adrenocorticotropic hormone (ACTH) and cortisone has lent support to many of the basic concepts on which its theory depends.

If future events prove that this concept is correct, it will prove to be one of the significant medical advances in understanding the nature of disease of this century. One can carp at the somewhat rigid division of the adrenal steroids into mineralocorticoids, glucocorticoids, medulloids, lipocorticoids and others, since many of the steroids have been shown to have significant actions in several of these fields. However, the general stature of Selye's work requires no defense. Every serious student of internal medicine and endocrinology is almost constrained to familiarize himself with this textbook. The bibliography is most thorough.

The Physiology of Work and Play: A Textbook in Muscular Activity. By Sarah R. Riedman. Cloth. $4.90. Pp. 584, with 158 illustrations by Ida Scheib. The Dryden Press, Inc., 386 Fourth Ave., New York 16, 1950.

As stated in the preface, this volume is primarily a textbook on the physiology of muscular activity written for undergraduates in physical education, physical therapy and recreation. The well-organized table of contents indicates that the book is divided into five parts. Part 1 considers muscle physiology, fatigue and the nervous control of muscular activity. Part 2 discusses cardiovascular-respiratory functions in relation to exercise. Part 3 is concerned with the internal environment of the body and changes occurring in the blood, tissue fluid and lymph as a result of skeletal muscle activity. Part 4 discusses skeletal muscle activity and work under such limiting environmental conditions as unusual barometric pressures and extremes of temperature and humidity, as well as under conditions of modern industry. Part 5 contains information of interest to the practicing physician with reference to convalescence and reconditioning, therapeutic exercises, physical fitness, somatotypes and psychosomatic interrelations of the nervous and skeletal muscle systems.

Since the scientific background of physical education students is not uniform, the author includes pertinent material on gross anatomy, histology and chemistry. The basic and applied physiology of exercise are well presented, but in some instances accuracy has been sacrificed for brevity and simplicity. Thus it would be more accurate to say that for all practical purposes cardiac muscle cannot be tetanized rather than that "cardiac muscle can not be tetanized at all" (page 32); and that immobilization of a limb decreases rather than "prevents the flow of impulses both to and from a muscle" (page 52). The cerebellum aids importantly in postural reflex mechanisms but is not a center for postural reflexes (page 195). Contrary to the information on page 212, atropine decreases sweat secretion. The cardiac output values quoted on page 270 and obtained by the acetylene method have in recent years been shown by the cardiac catheterization technic to be too low. Contrary to the statement on page 371, the capillary wall is only relatively impermeable to the plasma proteins. There are also a few confusing typographic errors, such as "the R.Q. was 9 and 9.5" (page 85), and "running increased the f.f.f. [flicker fusion frequency] by 80 to 90 per cent" (page 156).

The style is clear, the illustrations are satisfactory, and the index is adequate. A good summary and pertinent reference list are included at the end of each chapter. The format of the book is in keeping with its list price. This volume is recommended for students of physical education, physical therapy and recreation, as well as others interested in this field of human physiology. Physicians will find part 5 of value.

Professional Nursing: Trends and Adjustments. By Eugenia Kennedy Spalding, R.N., M.A., Professor of Nursing Education, Indiana University, Bloomington, Ind. Fourth edition. Cloth. $4. Pp. 730, with 29 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London W.C.2; 2083 Guy St., Montreal, 1950.

This book has been extensively revised and enlarged to give a fuller understanding of the many social, economic, professional and other factors that are directly related to the nursing field. First, there is an introductory section describing the technic of collecting, evaluating and organizing source material essential in the study of nursing problems and methods of professional readjustment. In unit 1, the Social and Professional Outlook of the Graduate Nurse, the discussion centers on nursing as a profession, recent advances and current problems that may affect the future of nursing. The succeeding section contains a survey of occupational opportunities for professional nurses, information on nurses in public service, selection of work, continuation of education and the procedure for obtaining employment and resigning from a position. Unit 3 presents up-to-date information on the activities of professional organizations in the nursing field and also discusses nursing and related legislation, public relations in nursing and the organizational principles and practices which aid in professional activities. The concluding section concerns legal relations, problems of economic security and professional relations with physicians, patients and their families and other members of the nursing staff. Suggestions are also made with reference to mode of living, leisure activities, personal appearance, gracious manners and tact.

This book is written primarily for the professional nurse and offers a wealth of information on nursing organization activities and relations that will be helpful in making readjustments to individual problems. Methods of procedure are fully described in each chapter, and there are an extensive bibliography and suggested references.

The Theory of Camping: An Introduction to Camping in Education. By Frank L. Irwin, Ed.D. Cloth. $2.50. Pp. 173. A. S. Barnes and Company, 101 Fifth Ave., New York 3, 1950.

Different from many books on the subject, this volume is concerned chiefly with the educational aspects of camping and with ways of integrating the objectives of camping with the general purposes of education in America. While the methods through which camping can help to achieve educational goals are outlined, as the title indicates, the book is in no sense merely a manual of camping activities. Instead, it seeks to present the basic principles of good camping on which specific programs may be built in particular situations. Organized camping is defined as an educational enterprise providing children with an opportunity to live, work and play in a group situation to obtain experience and insight into many of the basic processes of life and to receive guidance from a mature counselor who influences the camper all during the day over an extended period of time. After tracing the development of camping in the United States, the author shows how a properly organized and conducted program can contribute to self reliance, economic efficiency and civic responsibility and at the same time provide unusual opportunity for experience and training in human relations. The importance of understanding the individual camper and meeting his personal needs within a situation that inherently stresses group living is emphasized. The camp program is then considered with stress on the vital role that good counseling and administration play in providing a worth while schedule of activities. A description of day camps and public school camping, together with up-to-date bibliographies, add to the usefulness of the volume. Physicians concerned in any way with camping will be particularly interested in the section on health and safety which, although brief, provides satisfactory coverage of the health service aspects of camping.

The American Red Cross: A History. By Foster Rhea Dulles. Cloth. $5. Pp. 554. Harper & Brothers, 49 E. 33rd St., New York 16, 1950.

Written with an approach that shows no bias, this historical review presents the story of the American Red Cross ably and completely. It is essentially a condensation and extraction of a series of monographs prepared by a special division set up within the organization. The author also had access to official records and states specifically in his preface that no restrictions or pressures were applied to influence the way in which those were used.

Personalities are always interesting subject matter, and the author shows special skill in the presentations scattered throughout the book of important personages who have guided the Red Cross over its lifetime of more than 70 years. Perhaps the most unusual of these was the founder, Clara Barton. Although growth of the Red Cross might now seem to have been the most natural and inevitable thing in the world, actually it was a struggle that called for perseverance and faith on the part of those associated with its early beginnings and the "growing pains" from which it suffered at intervals. These are described with candor in three different chapters, one on controversy and reorganization, another on criticism and reform and the third on the Red Cross and the New Deal.

In addition to the 30 chapters describing the Red Cross, its services in war and in peace, international operations, volunteer activities, special features, such as the blood donor program and aid to prisoners of war, a final chapter lists in specific detail the source material on which the author was able to draw. As the author states, this is the first complete history of the Red Cross. It is a thoroughgoing piece of work that should be of widespread interest for persons in all levels of society.

Developments in Diphtheria Prophylaxis. By Lewis B. Holt, M.Sc. Cloth. 12s. Pp. 181, with illustrations. William Heinemann Medical Books Ltd., 99 Great Russell St., London W.C.1, 1950.

In 1926, Glenny and others demonstrated that the antigenic power of alum precipitated diphtheria toxoid was greater than that of the plain or nonprecipitated product. The newer preparation proved too irritating for administration to children, but it was later found that careful washing of the precipitate provided a product which could be used for human immunization.

Alum precipitated diphtheria toxoids often vary in potency even under regulated and well controlled methods of production. These variations, with their attendant problems of adequate diphtheria prophylaxis, prompted the author's search for a reliable and accurately reproducible prophylactic of high potency and stability. The work includes the description of a method for preparation of such a product and of the antigen and the alum precipitate.

Data are presented which reflect the effect of *p*H, temperature, formalin concentration, minerals, types of aluminum salt and other variables on the quality of the toxoid prepared.

Considerable space is devoted to a critical review of the current theory, postulated by Glenny, that the increased antigenic efficiency of alum toxoid is due to slow absorption and elimination. An alternative explanation, supported by experimental data, is offered for the greater physiological activity of the precipitated toxoids as compared with their parent formol toxoids. It is postulated that the optimum amount of alum is of far greater importance than the amount of antigen, since when the amount of mineral carrier (alum) is increased, the antigen is efficiently distributed among a large number of antibody-producing cells. The author suggests the possibility of a standard or reference diphtheria prophylactic, based on the "purified toxoid, aluminum phosphate precipitated" preparation he describes. No reference standard for these products is presently recognized by government agencies in England or the United States.

Textbook of Anatomy and Physiology. By Catherine Parker Anthony, B.A., R.N., Instructor of Anatomy and Physiology, Lutheran Hospital, Cleveland, Ohio. Third edition. Cloth. $4. Pp. 614, with 208 illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1950.

This textbook is designed for use in nurses training schools where the two subjects anatomy and physiology are combined in a single course; it is also suitable for reference in high schools and for use in college courses. The style and arrangement are intended to facilitate teaching, and each chapter is provided with an introductory outline, a unit vocabulary, a concluding outline-summary and review questions. In addition, there are useful tables, a wealth of attractive illustrations and a good index.

Attention should be called to a medical superstition innocently perpetuated by the author on page 442, where it is stated that a person whose frenum linguae is "too short for freedom of tongue movements" is said to be tongue-tied and to have faulty speech. No speech defect of this sort is recognized in modern textbooks on speech correction; on the contrary, cutting of the frenum in the newborn may be followed by deformities that do entail speech defects. This was pointed out by McEnery and Gaines in 1941. On page 517 the author advises that in babies with undescended testes measures should be taken to bring the testes down into the scrotum. This recommendation should be replaced by the physiological facts noted by Drake in 1934, and by others as well, who found an incidence of more than 5 per cent of undescended testes in otherwise normal boys at birth, and who showed that in the overwhelming majority of these cases spontaneous postnatal descent occurred, sometimes as late as the age of 18 years. Drake concluded that the only case that should be considered a surgical problem is the bilateral one persisting to the age of 14 or the unilateral case with complications. It is hoped that these two errors, both capable of doing incalculable harm, will soon be eradicated from medical literature and will be corrected in future editions of this otherwise commendable book.

American Red Cross Home Nursing Textbook. Prepared under the Supervision of Nursing Services, American Red Cross. [Sixth revision.] Cloth. $1. Pp. 235, with illustrations. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St, Philadelphia 5, 1950.

This book is an informative and helpful presentation of home nursing procedures. The instruction given is based on the assumption that the patient's treatments, other than emergency first aid, are ordered by a physician and that the general nursing care is under a physician's supervision or that of a professional registered nurse. The book is prepared primarily as a textbook for those who take the Red Cross home nursing course, but it will be helpful to others. It includes information on how to meet simple home emergencies, how to recognize some of the early signs of illness, how to provide simple nursing care for the sick and injured at home and how to help keep the family well. There are detailed instructions for carrying out many home nursing procedures. Selected additional references for those who wish to study further are mentioned. This textbook will be welcomed by its old acquaintances and the newer ones that it will make.

William Withering of Birmingham, M.D., F.R.S., F.L.S. By T. Whitmore Peck, M.P.S., and K. Douglas Wilkinson, O.B.E., M.D., F.R.C.P. Cloth. $4.50. Pp. 239, with illustrations. The Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1950.

This account of Dr. Withering's life and enterprises is no mere biography, in the conventional sense, but is more exactly a work of the heart. It is as though the authors desired to build a memorial to the man who had been a source of inspiration to them; and in so doing to instil in others a measure of the zeal they had derived from a study of his life. This gives one the feeling that the book is primarily oriented toward the student.

The authors have succeeded in compiling an interesting and moving account of the maturation and full realization of a man of genius, an account well documented and at the same time free from pedagogy. The book is replete with the letters, notes and case histories compiled by the famous physician of Birmingham, and the authors have chosen the best course—they let the man speak for himself—for William Withering was a man of vision, as a quote from "An Account of the Foxglove" will testify: "After all, in spite of opinion, prejudice, or error, Time will fix the real value upon this discovery (digitalis) and determine whether I have imposed upon myself and others, or contributed to the benefit of science and mankind."

The book contains a measure of interest for the layman, there being an absorbing description of the social milieu in which Dr. Withering lived and the relation of the doctor to his contemporaries. Throughout, this work is pervaded by the character of Dr. Withering, a man at once a great scientist, a good physician intimately concerned with the welfare of his patients and an active citizen of the community—a man who felt and shouldered the responsibilities entailed in being a physician.

Taxes and Economic Incentives. By Lewis H. Kimmel. Cloth. $2.50. Pp. 217. The Brookings Institution, 722 Jackson Place, N.W., Washington 6, D. C., 1950.

Realizing that the heavy revenues needed to finance greatly increased governmental expenditures can only be raised in an expanding economy, the author has prepared an analysis and appraisal of the principal taxes now employed from the standpoint of economic incentives. His study opens with a general discussion of taxable capacity in a free enterprise economy, which he defines as "the capacity to raise revenues without extreme interference with productive activity and the operation of the economy." The principal determinants of taxable capacity—the volume and composition of national income, the nature of governmental expenditures, the available methods of taxation and the reactions of people to tax burdens—are reviewed. Major emphasis is placed on the reactions of taxpayers. The four major taxes—income, sales and excise, property and payroll—are each examined in relation to four principal incentives essential to a dynamic and growing economy. These are the incentives to establish new businesses, for existing businesses to expand, to invest and to work. A discussion of incidence and shifting is presented in respect to each type of tax. Direct information on the reactions of the business community to specific taxes, which was obtained from a questionnaire sent to 1,000 manufacturing corporations, is also included.

This study indicates that the corporate income tax and the personal income tax are most detrimental to economic incentives. Decisions relating to the expansion of existing enterprises, particularly in the case of the small and moderate-sized firm, are considerably influenced by the corporate income tax, while the personal income tax has its greatest effect on the volume of savings available for investment. The incentive to work and the incentive to establish new enterprises seem to be influenced more by other factors than by taxes. Apparently, sales and excise taxes and property taxes have less effect on economic incentives than is generally believed. While the present rate of payroll taxes has not been found to be burdensome, an increase in this rate might have serious repercussions. Most important among the author's recommendations for an effective tax policy is a proposal for the coordination of the personal and corporate income taxes and the substantial reduction of the corporate income tax as such. His proposal is aimed at removing the present tax deterrents to business expansion without appreciably reducing any tax source. He stresses the importance of a balanced system of diversified taxes. With the events of the past few months and the necessity for even greater governmental expenditures, this book is particularly timely.

The Hormones: Physiology, Chemistry and Applications. Volume II. Edited by Gregory Pincus and Kenneth V. Thimann. Cloth. $12.50. Pp. 782, with illustrations. Academic Press, Inc., Publishers, 125 E 23rd St., New York 10, 1950.

This volume includes the bulk of studies in animal physiology and bioassay procedures relevant to endocrinology. Clinical endocrinology is relegated to a single chapter of 40 pages which, while well handled, of necessity must be sketchy. The chapters on physiology and chemistry are valuable sources of experimental evidence for present day theories of endocrine function. The bibliography is comprehensive. The series will prove most valuable to the serious student of endocrinology and those interested in experimentation in this field. The intent of the editors is a complete presentation of the subject at the research level. They have succeeded remarkably well in attaining this goal.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

IMMUNIZATION OF DIPHTHERIA CONTACTS

To the Editor:—What is the accepted opinion regarding the use of passive immunization concurrently with active immunization in diphtheria contacts? Apparently those who object to active immunization being started at the same time that passive immunity is induced believe that one interferes with the other. Harold W. Conran, M.D., Suva, Fiji.

ANSWER.—It is generally accepted that active immunization of susceptible contacts of diphtheria cases is practical and effective when the first of two or three doses of antigen is given simultaneously with a prophylactic serum antitoxin. The empirical belief that the resulting protection from toxoid is neutralized to some extent by the passively acquired antitoxin and that the resulting protection from the passively acquired antitoxin is neutralized to a small extent by the toxoid has been confirmed by animal and human studies. However, the amount of interference of one by the other appears to be so small as to be negligible when optimum procedures are used.

The protection conferred by toxoid in animals and humans depends not only on the amount of toxoid used, the number of doses and the interval between doses but on the prior experience of the patient with diphtheria infection or immunization. Persons who have had such prior experience have their immunity mechanism sensitized so that they respond within a few days to a single small dose of toxoid and seldom require antitoxin. Persons not so sensitized need basic immunization, which requires much longer to develop. They require an effective primary stimulus before they can mobilize adequate amounts of antitoxin in the circulating blood. Such persons are of chief concern in considering the probable effectiveness of simultaneous active and passive immunizations. In such persons the primary stimulus induced by the first dose of toxoid is delayed and inhibited by simultaneous administration of prophylactic antitoxin. The protection following the second dose is increased either when the amount of toxoid in the first dose is increased or when the amount of antitoxin is decreased. Alum-precipitated toxoids give better response than plain toxoids, and alum-precipitated toxoids are more effective when given with a four instead of a two week interval between doses.

Available data indicate that during the eight week period following the second of two doses of alum-precipitated toxoid, which has been given with a four week interval to completely susceptible persons, those who receive 500 to 1,000 units of antitoxin at the time of the first dose are not as well protected as those receiving no antitoxin. However, after 14 weeks the protection in those receiving antitoxin is almost as good as in those receiving no antitoxin (Downie, A. W., and others, *J. Hyg.* 46:34 [March] 1948). The final slight difference in protection is of little consequence but can be obviated if one gives a third dose of toxoid or increases the interval between doses to six weeks. It is important that susceptible diphtheria contacts be kept under careful observation during the period when the passive immunity is low and the active immunity has not fully developed.

SENSITIVITY TO EMBALMING FLUID

To the Editor:—A mortician has a skin sensitivity to embalming fluid with a formaldehyde base. Is there an embalming fluid with other constituents available? Can the man be desensitized to formaldehyde?
L. R. Evans, M.D., Laramie, Wyo.

ANSWER.—The skin of many persons becomes inflamed by contact with formaldehyde fumes or solutions. Generally the skin of such persons is sensitive also to other substances or solutions, such as soaps. One so constituted must make adjustment to prevent or to minimize contact with these chemicals or substances. Morticians are supplied by manufacturers with embalming solutions that must comply in chemical content with state or federal regulations. Solutions with low formaldehyde content, or perhaps with no formaldehyde, are now available. Inquiry about these may be directed to the Champion Chemical Company, Springfield, Ohio; Dodge Chemical Company, Boston; Undertakers Supply Company, Westport, Conn., or Undertakers Supply Company, Chicago. There is no known procedure for desensitization against formaldehyde preparations.

EXCESSIVE PERSPIRATION FOLLOWING SYMPATHECTOMY

To the Editor:—A man aged 50 had a bilateral sympathectomy eight years ago for relief of Raynaud's disease of the fingers. Since then he has had excessive perspiration of the entire trunk of the body. This is a source of great embarrassment and retards his advancement in his company. Are there any drugs that might offer him relief?
W. F. Francka, M.D., Hannibal, Mo.

ANSWER.—Excessive sweating in hot weather is a common sequence of partial sympathectomy, because sweating is inhibited over the sympathectomized part of the body and the limited number of remaining functioning sweat glands have to work overtime in aiding dissipation of heat through evaporation. Whether this mechanism is important in this case cannot be determined, because the extent of the sympathectomy and circumstances of sweating are not stated. It is probable that the basic autonomic disturbance responsible for the original Raynaud's syndrome plays a role here. Excessive sweating, particularly of the axillas, palms and soles, commonly accompanies Raynaud's disease, and emotional stress seems to be an important factor in both the sweating and vasoconstriction of this disease. Furthermore, as Kuno has shown, mental and emotional stress influences sweat gland activity not only on the palms, soles and axillas but on the trunk. That emotional factors may be a contributory factor in this case is suggested by the fact that the patient allows the sweating to embarrass him socially and to retard his advancement in his company.

Drugs which block sweat gland activity are contraindicated where sweating is necessary for heat dissipation, as the body temperature would rise. Furthermore, the newer drugs which block the autonomic nervous system have side-effects and other disadvantages which preclude their continued use. If high environmental temperature is an important contributing factor, the installation of air conditioning or other cooling devices in the office and/or home should be considered. In any case, treatment should be directed toward getting the patient to accept the fact that sweating need not block his social and business progress.

RH ISOSENSITIZATION BY PREGNANCY

To the Editor:—A 25 year old quadrigravida is Rh negative, and her husband is Rh positive. The first child is six years old and well. The second child was delivered at eight months, lived six days and died. The third baby was delivered stillborn at six months. The patient is now three months pregnant. The result of the Wassermann test is negative. There is no history of venereal disease. How can I help this patient?
Alfred H. Hathcock, M.D., Fayetteville, Ark.

ANSWER.—The clinical story is strongly suggestive of Rh isosensitization by pregnancy, but the actual diagnosis depends on the results of tests for Rh sensitization. Blood specimens should be taken from the expectant mother and father and from the child and sent to a laboratory specializing in Rh tests. This laboratory will verify the Rh type of the husband and the wife and determine the Rh type of the living child. In addition, the laboratory will test the mother's serum in order to determine whether she is sensitized to the Rh factor. There are at least three possible results:

1. The tests may reveal that the original typing of the patient is incorrect and that she is actually Rh positive, or they may show that, although the patient is Rh negative, she is not sensitized to the Rh factor. In that case Rh sensitization could not be the cause of the neonatal death and the stillbirth, and some other explanation would have to be sought. The prognosis for the present pregnancy would then depend on the explanation found.

2. A stronger likelihood is that the laboratory tests would confirm the previous report that the patient is Rh negative and her husband Rh positive and, in addition, would show that the patient is sensitized to the Rh factor. Such results would support the surmise that the second baby probably died from erythroblastosis and that the stillbirth was also probably due to Rh sensitization. The prognosis for further pregnancies would then depend on the Rh type of the fetus. If the fetus is Rh positive, another stillbirth would be likely; if the fetus

is Rh negative, it would not be harmed by the maternal Rh antibodies. It would be helpful in this connection to determine whether the husband is homozygous or heterozygous for the Rh factor. A presumptive diagnosis as to genotype could be made by Rh-Hr typing of the husband. For example, if the husband belongs to any of the types Rh_1Rh_2, Rh_1Rh_1 or Rh_2Rh_2, he is probably homozygous for the Rh_0 factor, but if he belongs to type Rh_1rh or Rh_2rh he is probably heterozygous for the Rh_0 factor. It might be possible for one to determine the husband's genotype more exactly by typing his parents, if they are available, and also from the Rh type of the living child. Where the expectant mother is strongly sensitized to the Rh factor and the husband is homozygous for the Rh factor, a therapeutic abortion may be indicated, provided the pregnancy is not too far advanced. The abortion would be indicated not only because such a pregnancy would be futile but because it involves increased hazards for the mother, since toxemia and severe postpartum hemorrhage are not infrequently associated with hydropic stillbirths. In the present case, in which the pregnancy is already far advanced, the only recourse is to handle the problem as conservatively as possible.

3. A third possibility is that the neonatal death and stillbirth were not due to erythroblastosis but that now the patient has become sensitized to the Rh factor as an additional complication. In such an event attention should be focused primarily on the problem of Rh sensitization. If the tests indicate that the fetus in utero is almost surely Rh positive, it might be possible to save the baby by delivering it prematurely and treating it without delay by exchange transfusion. If, however, there is a possibility that the fetus might be Rh negative, the pregnancy should be permitted to go to term.

UNDESCENDED TESTICLE

To the Editor:—A 12 year old boy has bilateral indirect inguinal hernia, a small hydrocele on the left and an undescended testicle on the right, which could not be felt in the canal. He also has a large umbilical hernia. I gave him a preparation of chorionic gonadotropin (5,000 units) without success. I planned to repeat the course, but the child never returned. His mother recently told me that he is now taking tablets. What could these be? At what age should treatment with gonadotropins be started? If they do not correct the cryptorchidism, is a Torek operation indicated? Does this operation make a testicle capable of spermatogenesis?

Ervan L. Levine, M.D., Vandalia, Mo.

Answer.—Frequently a hernia cannot be felt in association with an undescended testis, although it is surgically present in a high percentage of cases. In the case of this 12 year old boy, it is generally the belief that 30,000 units of anterior pituitary-like hormone constitutes sufficient total dosage, given two or three times a week, 500 units per dose. This course should bring the testis down in about 25 per cent of patients at this age. If the boy is taking methyl testosterone orally, no effect should be expected. One must not forget that a fairly high percentage of undescended testes descend during puberty, from about 12 to 16 years. If given before the age of puberty, gonadotropins should hardly be expected to effect descent of the testis. These substances will hasten puberty in boys near that age, at 10 or 11 years. Furthermore, gonadotropic hormones will cause descent only in boys whose testes would normally descend at puberty. A course of gonadotropic substances at 10 years of age may prevent surgical correction. If descent does not occur, operation is indicated, with either the Torek or elastic traction suture method. Spermatogenesis depends in large measure on careful preservation of the internal spermatic vessels.

DIETHYLSTILBESTROL IN PREGNANCY COMPLICATIONS

To the Editor:—I would appreciate information on the effects of diethylstilbestrol. What quantity can safely be taken in any given period or through pregnancy?

Paul M. Egel, M.D., Chicago.

Answer.—Diethylstilbestrol is a synthetic estrogenic drug and has the properties of all estrogens. Its use in the treatment of the menopause and in other conditions associated with ovarian failure is not complicated by untoward symptoms other than nausea for a few days after the institution of treatment in about 5 or 10 per cent of patients. It has been recommended for the prevention and treatment of some pregnancy complications, such as habitual abortion, diabetes and the toxemias. Graduated amounts of this drug are administered, beginning with 5 mg. daily and increasing to 125 mg. at 36 weeks' gestation. The efficacy of this therapy in the prevention and treatment of these pregnancy complications has not been proved; such proof awaits well controlled clinical experiments. There is little evidence that these amounts of diethylstilbestrol are harmful to the mother or the baby. Women can tolerate huge amounts of this drug during pregnancy without the occasional nausea induced by even small amounts in nonpregnant persons.

POTT'S DISEASE

To the Editor:—I have been using streptomycin and paraaminosalicylic acid in a case of tuberculosis of the last lumbar vertebrae (Pott's disease). The patient is 25 years of age. The patient's general condition is satisfactory and there is no deformity of the spine. What are the recommended average doses, duration of treatment and prognosis?

Juan José Lahuerta, M.D., Corella (Navarra), Spain.

Answer.—There are many different possibilities of dosage for the patient mentioned. Since bone lesions are rather slow to respond, the dosage used has been higher than that for pulmonary lesions. At least 1 Gm. of streptomycin, or 1.5 Gm. of dyhydrostreptomycin, should be given for 60 to 90 days. Because the bacilli may become resistant, the tendency now is to space the dosage every other day, or even every third day, and give 10 to 15 Gm. of paraaminosalicylic acid for four months or more. The paraaminosalicylic acid must be given in liquid form, 3 to 4 Gm. four times a day, near meal time, as a full stomach helps to prevent nausea. If nausea develops and persists, it is sometimes necessary that treatment be stopped for a few days. Usually the patient tolerates the drug on the second attempt.

RECTAL TEMPERATURE OF INFANTS

To the Editor:—What is the normal rectal temperature of an infant?

J. J. Johnson, M.D., Las Vegas, N. Mex.

Answer.—There is probably no "normal" rectal temperature for infants of 1 to 12 months but rather variable temperatures within the boundaries of normal. If the bulb of the rectal thermometer is inserted 5 cm. into the rectum, a higher temperature will be registered than if it is inserted only 3 cm. In the newborn the heat-regulating system is unstable. The temperature curves may show a considerable daily variation, which may be due to bodily movements, ingestion of food and the external temperature, all of which may cause a rise or fall of rectal temperature readings. The less protected the baby, or the cooler the room, the lower the temperature may be. Premature babies, of course, show the most pronounced variation in temperatures. It has been noted that bodily exercise may increase rectal temperature readings in normal infants; restlessness and crying may also cause such a temperature rise. A certain group of children show a constant rectal temperature of somewhat higher readings than the normal average; these infants are often members of neurotic families. Oscillations in rectal temperature are so universal that they should be considered normal manifestations based on a somewhat unstable heat-regulating mechanism in young infants.

MIXED MATINGS

To the Editor:—The maternal grandparents of a young married woman are white. Her mother is also white, as are her maternal aunts and uncles. Her paternal grandfather is a Negro, his parents having both been Negroes. Her paternal grandmother is light in color, one of her parents having been a Negro, the other white. The young woman's father is light in color; two of his sisters are colored. She herself is white and is married to a white man whose ancestors were all white. Will the offspring of this union result in white or Negro children?

M.D., New York.

Answer.—In a comprehensive study of mixed matings in Jamaica, British West Indies, Davenport (Heredity of Skin Color in Negro-White Crosses, Publication 188, Washington, D. C., Carnegie Institution of Washington, 1913) found that in 22 matings similar to that of the young woman's father, namely, of light-colored fathers having one of four possible genotypic factors for skin blackness with white mothers having no factors for black, or light-colored mothers with white fathers, there were 56 children of the same color of the white parents, 80 children of the same color as the colored parents and 1 child darker than the colored parents. Presumably, the young woman is of the genotype similar to the above group of children having no factor for black (the Caucasian type) and cannot, therefore, contribute a factor for black to her offspring; neither can her mate, who is of a similar genotype. Davenport investigated the question of dark children being born to a pure-bred white married to a white extracted by mendelian segregation of alleles in mixed matings of progenitors. He found that the idea of "reversion to black" was mythical.

DIAGNOSIS OF PREGNANCY

To the Editor:—I would like to know what the present status is of the skin test for the diagnosis of pregnancy.

E. S. Olson, M.D., Racine, Wis

Answer.—There is no reliable skin test for the diagnosis of pregnancy, certainly none which can compare in reliability with the Aschheim-Zondek, Friedman, frog and many other tests.

ULCERS IN MOUTH AND THROAT

To the Editor:—A widower, aged 58, gave a history of ulcerations of the entire buccal cavity and throat for five months. On his first visit, he was so weak he was brought in with the help of the family. He said that he had not eaten anything for three weeks, having lived entirely on water, coffee and tea. I gave him livibron® (contains liver concentrate, thiamine hydrochloride, riboflavin, ferrous sulfate and manganese citrate), thiamine hydrochloride, vitamin B complex in large doses hypodermically and penicillin in sesame oil, 2 cc. daily. He has received these four drugs daily for 30 days. I also vaccinated him against smallpox, with a resultant "take." Since then he has been revaccinated twice without a "take." During the past month he has received typhoid vaccine, up to 3 cc., intramuscularly, which resulted in fever for periods of three or four days. Other medicaments given in full dosage include aureomycin hydrochloride capsules and troches and chloramphenicol. Phenindamine (thephorin®) was tried for five days. During the past three weeks he has received three roentgen ray treatments, consisting of 300 roentgen units, with 90 kv., 5 ma., at 8 inches distance, without additional filtration, given over a period of about one to one and one-fourth minutes. With the above therapy, he has gained 12 pounds (5.4 Kg.) and has been able to eat soft bland foods. The patient's teeth were extracted several years ago, but he does not use dentures. He does not smoke or chew tobacco. He has mild thrombophlebitis and recently had a small varicose ulcer of the leg, which cleared up. He has general arteriosclerosis with some varicose veins and, I suspect, mild cirrhosis of the liver. His buccal cavity, tongue and throat are still ulcerated, and the condition appears to remain unchanged. Is there any other therapy that might help the patient? Has he been overtreated?

H. W. Stevens, M.D., Wilson, N. C.

ANSWER.—The patient has received a great amount of treatment. The fact that he has improved in general suggests that the supportive therapy has been effective; the persistence of the oral changes indicates that therapy has not been specific. The future care of the patient should depend on diagnosis. If tuberculosis, stomatitis venenata and medicamentosa and other entities can be excluded, the diagnosis would seem to be either aphthous stomatitis or primary herpetic gingivostomatitis. These conditions are often not differentiated, though they should be because of their etiology and treatment. Blank, Burgoon, Coriell and Scott of Philadelphia have corrected previous misconceptions. Their studies on patients with recurrent aphthae failed to demonstrate the virus of herpes simplex; the virus was usually found in herpetic stomatitis. No specific herpes simplex antibodies were present in the aphthous cases. The cause of aphthous ulcers is unknown, and therapy is also uncertain. Recent reports indicate that aureomycin is of value, but it is possible that the condition was confused with herpes. The results from aureomycin were favorable in herpetic stomatitis. It is suggested that the diagnosis be made specific, if possible. The use of antibiotics and vaccine has perhaps been too brief, and further trial may be worth while, especially in the absence of immunologic studies. The use of smallpox vaccine should be continued for a series of eight vaccinations at 10 day intervals, whether or not there are "takes." Other methods of treatment have been mentioned in previous answers in this section (Feb. 7, June 12, July 10, Dec. 25, 1948; July 20, Sept. 24, Oct. 1, Dec. 24 and 31, 1949; March 25, 1950).

MYASTHENIA GRAVIS

To the Editor:—Please give what information you can about OMPA, which has been mentioned recently as a treatment for myasthenia gravis.

James W. Davis, M.D., Statesville, N. C.

ANSWER.—The designation OMPA denotes the phosphorus-containing insecticide octamethyl pyrophosphoramide, also known as pestox III. The compound was synthesized in Germany several years ago, and information regarding its pharmacology and toxicity may be found in the recent report of DuBois, Doull and Coon (*J. Pharmacol. & Exper. Therap.* 99:376 [July] 1950). Inasmuch as OMPA is a strong anticholinesterase agent, it is likely to be of value in the treatment of myasthenia gravis. Preliminary clinical trials thus far have yielded promising results. At present the drug is available only for investigational use.

PENICILLIN, STREPTOMYCIN AND AUREOMYCIN

To the Editor:—Is there any practical means of administering aqueous procaine penicillin and streptomycin in the same syringe? Is there any evidence which indicates incompatibility between aureomycin given orally and penicillin given intramuscularly?

Berryman Green, M.D., Laguna Beach, Calif.

ANSWER.—Therapeutic forms of aqueous procaine penicillin and streptomycin are available for dispensing in the same syringe and from the same container. There is no evidence that there is incompatibility between aureomycin given orally and penicillin given intramuscularly.

ULTRAVIOLET RAYS IN PULMONARY TUBERCULOSIS

To the Editor:—I was in my third year at medical school when I contracted pulmonary tuberculosis. I am home now and have a 50 per cent uniform collapse of my right lung. The doctors feel I will be able to start school this September. Would it be detrimental to use an ultraviolet lamp for the purpose of getting a sun tan. I have asked a number of physicians, but they do not agree. If ultraviolet rays are used to treat tuberculosis of the skin and tuberculosis of the bone, would they be objectionable for sun tan in a person with controlled pulmonary tuberculosis?

Daniel McIntire, Lafayette, La.

ANSWER.—Ultraviolet rays for the treatment of pulmonary tuberculosis is risky because of the danger of overdosage. If treatment time is gradually increased—a minute or two for a week, then another minute or two for the next week, and so on—no harm will result. The risk, however, is out of proportion to the gain. There are many effects produced by ultraviolet rays, both locally and systemically. Some of these effects are known, some are not. There is an effect on the pigment of the skin, an inflammatory reaction where the blood cells are increased, and an increase in humoral substances, some of which are toxic. There is a wide difference between pulmonary tuberculosis and tuberculosis of the skin. Cutaneous tuberculosis is generally superficial and localized in the skin. Rarely does it spread beyond the skin. A lesion can be treated without much risk of spreading. In lung lesions the toxic agents in large dosage may cause a break in the cellular defense of the soft lung lesion, resulting in a spread to other parts of the lung or body. The effect is like that of any toxic agent, including burns.

FEVER THERAPY IN ASTHMA

To the Editor:—Please give information on fever therapy in cases of asthma.

M.D., Pennsylvania.

ANSWER.—The salutary effect of acute febrile disease on allergic manifestations has been known for centuries. Chronic and intractable asthma frequently becomes more completely relieved by intercurrent nonrespiratory infection than by almost any other means. It is not certain whether the elevated temperature or the conditions causing it (tissue destruction, bacterial substances, hormone production) are responsible for the benefit. Typhoid vaccine, injection of colloidal sulfur and malarial therapy have been used in the past. Fever produced by high frequency currents (diathermy) was used a number of years ago (Feinberg, S. M.; Osborne, S. L., and Steinberg, M. J.: Sustained Artificial Fever in the Treatment of Intractable Asthma, *J. A. M. A.* 99:801 [Sept. 3] 1932). More recently a pure carbohydrate constituent obtained from certain bacteria and known as pyromen® has been used to produce fever. An intravenous injection of 1 to 50 gammas will produce fever and other symptoms. While any of the above methods may relieve asthma, most of them are not without danger. They must be used with great caution, and the results are apt to be temporary.

COMPENSATION IN PARTIAL LOSS OF VISION

To the Editor:—What modification of the standard percentage of visual efficiency or loss is made in the case of slight impairment affecting one eye when vision in the other eye has already been impaired from preexisting and nonrelated disease? What modification is made depending on the visual level of the other previously impaired eye? The case in point is one in which the right eye carried a vision level of counting fingers owing to a previous disease. Years later retrobulbar neuritis developed involving the left eye, reducing vision to a 20/70 level after correction, with a permanent residual scotoma involving the central fixation area. This condition is compensable under the terms of the patient's private health and accident disability insurance. The percentage loss in visual efficiency according to the American Medical Association standards in this case would be about 33 to 35 per cent. But I wonder whether the percentage loss should not even be greater for a person whose vision in the other eye was practically serviceable previously. It seems to me that a 30 per cent loss in his only remaining eye is a far greater tragedy to him and actual disability than would be the case if the remaining eye had a normal level or a more moderate impairment. I think the standard percentage for visual loss in a case like this should therefore be modified, but I am not in possession of any tables showing what modification is reasonable. I would appreciate enlightenment on the subject.

H. Weldon Wilkinson, M.D., San Jose, Calif.

ANSWER.—Tables reducing disability to definite percentages are useful as a guide in some cases but inadequate in cases such as this. After the evidence is presented by the plaintiff and the defendant, the judge has to decide and usually allows much more than the percentages suggested by the Committee on Compensation of the American Medical Association. Different occupations require different degrees of visual acuity; what might be a serious loss to one would be only a moderate loss to another, although algebraically they might be equal.

PIGMENTATION FOLLOWING TREATMENT FOR ACNE

To the Editor:—A Negro woman who is being treated for acne of the face now has darker pigmentation of the treated areas. Is there any safe bleaching agent that may be used on the patient's face? The acne has improved.

M.D., Ohio.

ANSWER.—Melanosis following actinic ray application may occur in any racial group. Such occurrence has been observed frequently after one treatment, but it usually becomes pronounced after the third. The sulfur content of the skin and the use of sulfur or sulfur-like preparations either before or during therapy seem to be the chief contributing factors. One may prevent or alleviate the condition by (1) prohibiting or reducing the intake of sulfur-containing foods during the treatment period, (2) carefully and thoroughly cleansing the skin before treatment and (3) refraining from the use of sulfur-containing preparations for the duration of treatment. If left alone the melanosis will disappear in six to 12 weeks; mild skin peeling will hasten the process. An ointment of 2 per cent salicylic acid and 10 per cent ammoniated mercury in a greaseless ointment base is satisfactory. This application is to be made and removed immediately when tingling is noticed and then reapplied on the following day. Treatment should be repeated until desquamation occurs.

PRUNE JUICE AS A CATHARTIC

To the Editor:—I have a sample of prulose®, which apparently contains 2 grains (0.12 Gm.) of dehydrated prune concentrate, 6 grains (0.40 Gm.) of methylcellulose and 1/63 grain (1.03 mg.) of diacetyldioxyphenylisatin. It was stated that this last-named drug is the cathartic agent in prunes. I would appreciate knowing whether this drug is prepared synthetically or by the processing of prunes. If it is not the cathartic principle of prunes or prune juice, what might it be?

Walter A. Fansler, M.D., Minneapolis.

ANSWER.—According to Emerson (*Proc. Soc. Exper. Biol. & Med.* 31:278, 1934) water extracts of prunes possess certain chemical and physiological properties similar to dihydroxyphenylisatin. Emerson also found that, while diacetyldioxyphenylisatin (isacen) had effects similar to prune extracts on the isolated gut, the compound, unlike prune extracts and dihydroxyphenylisatin, did not give a positive reaction in the ferric chloride test for phenolic groups. Diacetyldioxyphenylisatin, a phenolphthalein derivative, was synthesized by Guggenheim in 1925 in a search for a more effective cathartic agent than phenolphthalein. He found it to be less irritating to the stomach than the parent nonacetylated compound. It was accepted by the Council of Pharmacy and Chemistry in 1926 but omitted in 1940 because of lack of clinical evidence that it possesses any demonstrated superiority over phenolphthalein and because it was more expensive than phenolphthalein.

IMMUNIZATIONS IN OLDER PERSONS

To the Editor:—Preparatory to traveling to South America, a man and his wife asked me about typhoid, paratyphoid and typhus vaccination. Are there any contraindications? The man is 60 years old, had typhoid when he was 12 and is a mild diabetic. He has arteriosclerosis, blood pressure of 160/95 and retinopathy which has been stable for several years. His wife, 65, had a mild cardiac attack several years ago, with residual low cardiac tonus.

M.D., New York

ANSWER.—It is unlikely that a 60 year old man who has had typhoid would experience another attack and he might have an unpleasant reaction if given typhoid vaccine. It seems reasonable that this man, in his present condition, not be subjected to any immunizing procedure which is not urgent. Although typhoid is not common at 60 to 65 years of age, it is advisable to afford the wife protection. If the intracutaneous method is used, the possibility of severe reactions is lessened. The couple should not be denied protection from typhus if they are going to a locality where typhus is either epidemic or endemic.

VITAMIN C AND CATARACTS

To the Editor:—Is there any scientific evidence to show that the continuous and prolonged oral use (more than one year in the case in question) of 300 mg. daily of ascorbic acid can produce opacities of the crystalline lens?

M.D., New Jersey.

ANSWER.—There is no clinical or experimental evidence that human beings experience any toxic effect from vitamin C given in the dosage mentioned. Vitamin C plays an important part in the nutrition of ocular tissues. The healthy lens is particularly rich in this vitamin, while totally cataractous lenses contain little or none. There is evidence that vitamin C has no direct bearing on the experimental production of cataract but no evidence that an excess of it contributes to the development of cataract.

VAGINAL PROLAPSE

To the Editor:—What is the incidence of vaginal prolapse following vaginal hysterectomy for uterine prolapse in general and particularly after Heaney's operation for prolapse? What are the best operative methods for vaginal prolapse following vaginal hysterectomy?

I. Andrussier, M.D., Philadelphia.

ANSWER.—Vaginal prolapse after vaginal hysterectomy is rare. Veenboer and Kooistra (*Am. J. Obst. & Gynec.* 53:936 [June] 1941) followed 104 cases of vaginal hysterectomy from 18 months to four years and found no cases of vaginal prolapse. However, Rhoads and Zeit (*Am. J. Obst. & Gynec.* 51:533 [April] 1946) followed 385 vaginal hysterectomies according to the technic of Weir and found four cases of prolapse of the vaginal vault (2.08 per cent). Some gynecologists have performed several hundred vaginal hysterectomies without the occurrence of prolapse of the vagina, and this is true of the Heaney technic; but prolapse of the vagina following vaginal hysterectomy is a definite possibility. Vaginal prolapse must be differentiated from enterocele.

There are two ways of attempting to cure prolapse of the vagina, one of which employs the abdominal route and the other the vaginal route. The abdominal operations of suspending the vagina to the abdominal wall are generally not satisfactory. Much better results are obtained by an extensive vaginal plastic operation including suture of the posterior vaginal fascial layers and the building up of a strong levator sling and perineal body. In very old women partial or complete colpocleisis may be done.

ARTHRITIC CHANGES OF OLD AGE

To the Editor:—Is the use of desoxycorticosterone acetate warranted in the treatment of the hypotrophic arthritic changes of old age in which the cause is obscure?

M.D., Mississippi.

ANSWER.—Rheumatologists are almost unanimous in their opinion that desoxycorticosterone acetate does not exert a beneficial action on any type of arthritic process. Furthermore, its potential hazards in hypertensive and cardiac patients, because of salt and water retention, must not be overlooked. Because of the many cardiovascular and renal changes in old age, desoxycorticosterone acetate must be used with caution when indicated.

POSTNASAL DRIP

To the Editor:—A patient with chronic sinusitis of many years' duration has nocturnal postnasal drip. He awakens from sleep to expectorate the material about twice nightly. Being awakened he voids. This nocturia was ascribed to prostatic hypertrophy. I considered the nocturia as pseudonocturia, since no prostatic enlargement was found. I prescribed 50 mg. of diphenhydramine hydrochloride before retiring, with splendid response. Occasionally, the patient forgets to take the drug and his sleep is again interrupted as aforementioned. The patient believes that he has become addicted to this drug. I reassured him that this drug, in the dosage given, is not habit forming and that it would not cause "liver damage."

M.D., New York.

ANSWER.—While diphenhydramine hydrochloride is the most sedative of the antihistaminic drugs, as yet there are no reports in the literature of addiction to the drug because of this effect. Long term use of any sedative may lead to dependence. Experimental evidence indicates that detoxification of diphenhydramine probably occurs in the liver, spleen and kidney, with the liver playing the primary role. Chronic toxicity studies have failed to disclose definite liver damage due to this drug, but effects on the hemopoietic system have been noted.

HAMSTERS FOR CULTURING TUBERCULOUS MATERIAL

To the Editor:—In *The Journal* of July 22, 1950 (page 1127) in response to a query as to the possibility of using hamsters instead of guinea pigs for inoculation of possible tuberculous material, it is stated, ". . . the culture is much cheaper and in a number of ways more *efficient* and direct." I feel that many of the men dealing with tuberculosis will not agree with that statement.

The culturing of sputum or gastric contents may be a bit cheaper than inoculating a guinea pig, but I believe it is far less reliable. Cultures are *difficult to grow* and must be interpreted by experienced laboratory personnel. I find that about 5 per cent of gastric lavages reported as being negative on culture are positive on guinea pig inoculation. This *is especially true in* cases in which there has been adequate collapse and chemotherapy. Of some dozen veterans recently discharged from a *Veterans Administration* hospital, all of whom have had literally dozens of negative gastric cultures, three have been found to have *negative* cultures, but guinea pig inoculation of the same specimen was positive. In a matter as vital as this, a small additional expense should not stand in the way of certainty of ruling in or out the *presence* of active tuberculosis or of giving the patient a false sense of security.

Elliot A. Rouff, M.D., Los Angeles.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 144, No. 17 CHICAGO, ILLINOIS December 23, 1950

Copyright, 1950, by American Medical Association

MISCONCEPTIONS IN UROLOGY

Chairman's Address

EDWARD N. COOK, M.D.
Rochester, Minn.

As the years pass and the physician practices medicine in a particular field, he cannot help acquiring not only actual knowledge, if he has the ordinary intelligence and ability to grasp ideas and is ever on the alert with his eyes and ears open but his mouth shut, but also many concepts which have a philosophic as well as a scientific background. He will learn much of the art of medicine that today, in many instances, has been relegated to an insignificant place in the life of the physician. He will and should learn much of the proper way to live with his fellow man and his colleagues in medicine. He will acquire a broadening of his perspective, a greater ability to evaluate situations and a better sense of judgment. Unfortunately, he may also develop a dogmatism which at times will only lead to a narrowing of his perspective, a lessening of his sense of values, and the committing of errors in judgment. It is impossible for a modern physician to remain confined within his own special field and yet expect to practice medicine for the greatest benefit of the patient. Drs. W. J. Mayo and C. H. Mayo years ago saw the need for travel and study; they were always ready and eager to accept new studies if they were to the patient's advantage.

THERAPY

Today there are certain conditions that urologists are called on to treat and that at times, in my opinion, are not properly treated. Misconceptions about causation, interpretation of observations and modes of treatment have led to poor results which need not have occurred if a more careful interpretation of the available data had been made. I shall mention a few of these conditions.

Infections of the Urinary Tract.—Today, in the management of infections of the urinary tract, there is danger of the carelessness engendered by overconfidence in the seemingly adequate chemotherapeutic and antibiotic compounds easily available to the urologist. Too often a prescription is written for one of the newer and more expensive compounds when a few pills of one of the old established remedies would be of equal therapeutic value and would cost only a fraction as much as the newer drug. Carroll, Herrold, Finland and others have repeatedly urged that a complete inventory of any problem of infection be made before treatment is instituted. For many years I have stressed the need of recognizing any associated pathologic entity which would tend to lessen the efficacy of one or the other of these therapeutic agents. For instance, one cannot hope to sterilize urine in the presence of calcareous obstruction or a similar lesion.

Urethral Infections.—Another group of infections which I believe have been inadequately managed are those involving the urethra in both the male and the female. Urethritis in the male many times is a result of overtreatment. Studies of the associated discharge will reveal this. In his desire to help the patient a zealous physician may, by the too frequent and perhaps unnecessary use of irritating solutions and sounds, prolong and even aggravate the condition. Inflammation of the female urethra has been treated poorly. Overtreatment is most common. The proper diagnosis has been missed many times because of failure to examine a properly obtained specimen of urine and because adequate cystoscopic evaluation with the direct-vision instrument was not done. Time and again the antibiotic agents, with their high cost and sometimes difficulties of administration, have been used with the only benefit accruing to the drug house which sold them.

Conditions Based on Neuroses.—As in any branch of medicine, the urologist will see a considerable number of patients who have complaints referable to the urinary tract but without organic basis. Such neuroses may be divided into those associated with the urinary bladder and those associated with the sexual act.

Urinary Bladder: In many instances frequency of urination, when it is not accompanied with nocturia or dysuria in any form and when results of urinalysis are essentially normal, may well have a basis in habit. Each year patients are encountered who complain of this condition and who actually have received too much local therapy as well as chemotherapy without benefit. Simple understanding of such a patient's psychological background, with a careful and detailed explanation to the patient, enlisting his cooperation in gradually making the bladder hold more urine, will relieve the complaint.

Sexual Disturbances: The greater number of neuroses in urology are related to sexual disturbances Too often those regarded as leaders in the medical field are unwilling to take the time to sit down with these poor unfortunates and really explain why they have such a neurosis. Practically every patient who complains of sexual difficulties does so because of some functional disturbance. In many it is fatigue, mental or physical, and in a great number it has a basis in worry.

From the Section on Urology, Mayo Clinic.

Read before the Section on Urology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

Such apprehension and concern may arise from past indiscretions. Patients may be apprehensive of the future. They may be afflicted with mother-in-law trouble. These are but a few of the varied stories that all urologists from time to time can extract from such patients. In fact, one seldom fails to elicit such a story in any individual case. The only cure for these disturbances lies in a sympathetic and understanding consideration by the urologist of the condition of each patient. Sometimes it may seem wiser to turn the problem over to the psychiatrist, who undoubtedly is better trained in some of the details and analyses of such conflicts. I do not agree to such a course. I say this with all respect to my colleagues in psychiatry and mainly because many of my patients have said to me, "They tried to send me to a psychiatrist, but this trouble is not in my head; it is in my sexual organs."

Urologists should not become so concerned with the glamor of the surgical aspects of their specialty that they lose sight of the opportunities to help a definite group of persons—those who in the long run will be most grateful patients. Hormonal therapy has been of absolutely no value in this group of cases. Any benefit resulting from the administration of the androgens or the estrogens is, I am sure, purely psychic.

Enuresis: The complaint of enuresis often is presented to the urologist when he sees children and adolescents. The literature discloses that urologists are writing about a number of local lesions in the urethra and vesical neck which are held to be responsible for enuresis in these persons. Phimosis, urethral stricture, inflammation of the urethra, verumontanitis and the like all have been offered as the etiological answer to enuresis. However, if the subject is investigated from the standpoint of the psychiatrist, it will be seen that in any patient who has this condition evidence of conflicts can be found. Moreover, such an investigation might bring about the conviction that because of some psychiatric disturbance in the patient this unfortunate complication has developed. I believe that both the urologist and the psychiatrist would be definitely wrong in such an interpretation of the cause. In my experience and that of my colleagues seldom if ever has any lesion been found in the urethra to which we could attribute irritation that would cause enuresis.

As I have examined the psychiatric records of a number of patients such as these, my impression has been that the greatest conflict lies not within the child but within the parents. Invariably, the conflict that the psychiatrist describes as the "cause" of enuresis has developed after the enuresis has been present for months and even years. Each urologist should pay particular attention to the next patient who voices such a complaint. I believe the solution to the entire problem will be obtained if one question is asked: "What kind of sleeper is this patient?" Frequently the answer will be, "You could shoot a cannon off in his room and he would not wake up."

I believe these persons achieve such deep slumber that even their subconscious processes, which normally keep the muscles controlling urination in a state of contracture, are unable to provide the proper stimulus to continue this contracture. By taking some sort of mild stimulant which will diminish their deep slumber, most of these patients, in my experience, respond well and eventually correct their difficulty. I have prescribed 3/8 grain (25 mg.) of ephedrine sulfate to be taken at bedtime for one week to two weeks. Invariably this will enable the patient to remain sufficiently aware of his full bladder without actually disturbing his sleep, so that the muscles remain contracted and there will be no loss of urine. As the patient attains some confidence in himself, he gradually finds that he can hold his urine while he is asleep. The dose of ephedrine sulfate can then be taken every other night for a period of a few weeks and then less often until use of the drug is given up entirely. Such a method of therapy frequently is supplemented by the provision of a period of rest at noon so that the patient will not become too fatigued and also at times by awakening the patient at midnight and having him empty his bladder. I am certain that it is only in rare instances that any local lesion in the urethra contributes to enuresis, and I am equally certain that the conflict which the psychiatrist describes, and to which I have referred, is the result of the disease and not the cause of it.

Another condition occurring in children, specifically, recurrent infection in the male infant and small child, has been ascribed to the congenital deformity known as "posterior urethral valves." These folds of tissue, extending longitudinally from the vesical neck to the verumontanum, too often have been held accountable for recurrent infection and obstruction of urine. At the Mayo Clinic it is rare to find that such a lesion is present. Inadequate and improper chemotherapy is the usual cause of recurrent infection in such patients. If obstruction is present, it is much more likely to have been caused by contracture of the vesical neck.

ATTITUDES OF THE UROLOGIST

Within the past decade I have noticed two particular instances of what seems to me a most selfish attitude on the part of the persons concerned. Many urologists are actively engaged in teaching programs for the undergraduate and the graduate student in urology. No one would deny that he is pleased to occupy a position of guidance in medical education. In such a relationship, however, the student necessarily must be content with a subordinate position, as has been true from ancient times. In the instances to which I have referred, two well-known practitioners were concerned. They were outstanding men, who had contributed importantly to their specialty as well as to organized medicine. However, when the time came for the entry of other young practitioners into their communities, they employed what must be called reprehensible measures in an attempt to keep out these younger men. Why is this? Are they so unsure of themselves that they fear fair and ethical competition? If such be the case, their communities certainly need the new men.

Many times the giving of proper help and encouragement to a young man just starting out may and usually will lead to a relationship advantageous to both parties concerned. There should be much satisfaction to the older man as he reaches retirement if he can point to someone who is doing well, about whom he can say, "I helped train him and assisted him when I could as he started his practice."

The final misconception which I should like to mention concerns an ever growing attitude on the part of the graduate student in urology toward what in his opinion constitutes the practice of urology. In the past ten years there has been a noticeable change in this attitude. The change has been for the worse, in my belief. Today, to use the words of Dr. N. G. Alcock of Iowa City, an outstanding urologic teacher, "they are knife-happy." These graduate students seem to have little interest in such trivial measures as passing a catheter without hurting the patient or introducing infection. Their attitude is that anyone can pass a sound or a cystoscope, that transurethral procedures are relatively easy and that their use can be learned at will during the period of surgical training. Deliver me from such misapprehensions.

Why is such an attitude so prevalent today? It can be noticed virtually everywhere. Many of my friends scattered the country over have told me they are encountering the same thing. The answer, I believe, is obvious. In respect to training for specialty recognition, qualification for membership in societies, and presentations at meetings, the surgical aspects of urology have seemed to be stressed preponderantly. I would be the first to extol proficiency in urologic surgery, but at the same time I certainly cannot agree that it holds the supreme position some of my colleagues would lead me to think it should have. The art of medicine is far too profound and complex to be symbolized simply by the act of holding a scalpel. A urologist must be trained in all the phases of the specialty: diagnosis, instrumentation, various types of local therapy and surgery, both closed and open.

OPHTHALMOLOGY AT THE MIDCENTURY

Chairman's Address

A. RAY IRVINE, M.D.
Beverly Hills, Calif.

As we come to the halfway point of the twentieth century, it is appropriate to consider, in long range terms, the trends in ophthalmology during the last half-century and the scientific, socialistic and economic changes that are determining its future. The last 50 years have been characterized by tremendous progress in the basic sciences, in the development of medical research, the organization of teaching facilities and in the availability and utilization of these accomplishments by virtue of superior transportation and communication. In ophthalmology, the development of the ophthalmoscope and the slit lamp and the progress made in physiology have enabled the clinician to correlate his observations with the microscopic changes in diseases affecting the eye and have been largely responsible for the great advances made during this time.

INFLUENCE OF BASIC SCIENCE

More and more, a direct application of the basic sciences, such as physics, biochemistry, bacteriology and pathology, will be made in diagnosis and treatment. An example of such an application is the clearing of corneal edema by the instillation of glycerin, a phenomenon arising from knowledge of semipermeable characteristics of the endothelium and epithelium. Phillips Thygeson has correlated the clinical signs of many external diseases with the bacteriologic flora of the conjunctiva and cornea and with their histopathology. His technics, originally thought by many to be impractical, have proved to be office procedures easy to perform and extremely applicable to the immediate treatment of the patient. These are but two of many direct relations between basic science and ophthalmology.

In like manner a close alliance is occurring between ours and other medical specialties. Indeed, it becomes apparent that in this age of specialization, when ophthalmology itself is evolving into subspecialties of medical ophthalmology, neuro-ophthalmology, ophthalmic surgery and ophthalmic pathology, the traditional distinctions among these branches become indefinite. It has become as important for the ophthalmologist to understand cell metabolism and body fluid physiology as it is for the internist to understand them. This dependence on fundamental knowledge and its application and the increasing interrelation between the various branches of medicine fosters specialization to a degree far greater than practiced today. It becomes apparent that ophthalmology encompasses a field so large that one person cannot hope to cover it, which suggests that in the future specialization will increase. There will probably be more emphasis on and attention paid to group practice, each man within the group having his particular interests and talents, all of which will be necessary to best care for the patient's needs.

SOCIALIZED MEDICINE

Such specialization and accomplishments are best fostered by a social system of free enterprise. For advancement in any field, there must be strong and able persons or groups competing with each other, yet with such an interchange of ideas that they are all operating effectively, to each other's advantage. Any one organization, whether that organization be a government organization or a research institute, must never be allowed to dominate the research or other activities of these persons or groups.

The scientific, critical mind must have unhampered opportunity for free expression and exchange of ideas in order to produce the greatest intellectual wealth. Such opportunities are not available under the domination of a remote socialistic bureaucracy. The intimate and confidential relation between physician and patient must be encouraged and preserved, whereas under the socialistic program this relation is severed, and the professional responsibility becomes nebulous, advice unspecific and skill more or less disinterested. Commercialism enters the door while true professionalism seeks the exit.

We may divert the trend away from socialism by encouraging voluntary health insurance, wherein the patient realizes that there are obligations as well as benefits and thereby does not lose control of his personal welfare. We may divert it by strengthening the laws that provide government aid to that small proportion of the population who cannot afford to pay medical bills or insurance premiums, but our influence will not be heeded unless the sick have confidence in the physician they choose and look to him as their sympathetic adviser and wise professional counselor. Your attitude toward every patient you see, in your office, in his home or in the hospital, is influencing the trend and determining the ultimate outcome. If yours is an attitude of concern only for the welfare of the patient, there will never be a system of socialized medicine in this country. The absolute attainment of this attitude, like religion, is not acquired without effort. It must be ever taught, practiced and publicized.

Read before the Section on Ophthalmology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

Because of the tremendous increase in the population of the United States and the fact that the span of life has been lengthened 20 years in the last few decades, the blind program has become one of great economic concern to us all. According to the National Association for Prevention of Blindness, there are approximately 280,000 blind men and women and children in the United States. This burden to the taxpayers, during the past decade (in this state alone), is approximately $40,000,000. The federal government in 1948-1949 paid over $40,000,000 in aid to the blind. In the animal kingdom blindness means death; in the human race blindness means dependence, and dependence means burden economically and spiritually. A great deal has been accomplished in the rehabilitation program in the few states in which it has been established. In five states where some sort of rehabilitation organization has been instituted, noteworthy progress has been made in the last few years. In these five states about 3,000 blind had sufficient vision restored through surgical intervention and medicine to be removed from the blind aid category.

In this state $85 a month is paid to the blind. In several other states it is much less, but it will average at least $50 per month per person. If we consider an average of $50, approximately $2,000,000 yearly has been saved to the taxpayer by rehabilitation of the blind. How much could be accomplished if these savings through restoration of vision could be allotted to research associations and institutions for the prevention of blindness and the treatment of the blind. Less than $1,000,000 a year is spent in the universities and laboratories in the United States for eye research.

CONCLUSION

If all members of this association could become more vitally interested in the programs of the blind in all the states, the accomplishments would be astounding. During the past 50 years we have seen greater achievements than were accomplished under a few great leaders in the previous century. During these last 50 years, many more great leaders have undoubtedly left their footprints in the field of progress. I foresee from among this great organization many younger ophthalmologists who will carry on our great work and leave a lasting imprint of still greater and more far reaching accomplishments in the conservation, improvement and restoration of human eyesight.

9730 Wilshire Boulevard

Rays Beyond 70,000 Feet Altitude.—A new component has been discovered in these regions, the heavy nuclei rays. They have a relatively small penetrating power and do not occur therefore below 70,000 feet. They consist of atomic nuclei of higher atomic numbers which are stripped of all their orbital electrons. They carry the tremendous amount of kinetic energy of more than 2 billion electron-volts per atomic number. Their specific ionization is much higher than any other hitherto observed value. The mechanism of absorption in matter is of the same type as that of alpha particles but magnified by a factor of 1,000. Their range in living tissue reaches values of 10 centimeters in comparison of 50 microns for alpha particles. An estimation of their possible biological action indicates that they might represent a serious hazard to health.—Hermann J. Schaefer, Evaluation of Present-Day Knowledge of Cosmic Radiation at Extreme Altitude in Terms of the Hazard to Health, *The Journal of Aviation Medicine*, October 1950

RADIOACTIVE DIIODOFLUORESCEIN IN DIAGNOSIS AND LOCALIZATION OF CENTRAL NERVOUS SYSTEM TUMORS

LOYAL DAVIS, M.D.
JOHN MARTIN, M.D.
MOSES ASHKENAZY, M.D
GEORGE V. LeROY, M.D
and
THEODORE FIELDS, B.S
Chicago

Radioactive diiodofluorescein has been utilized in the study of 200 patients with the diagnosis of a space-occupying lesion of the central nervous system. We have correlated our observations with the preoperative clinical diagnosis, electroencephalography, pneumography, angiography and surgical and autopsy observations We have made postoperative and postirradiation tests and, finally, we have correlated all these studies with the histopathological characteristics of the tumors. The results indicate that this radioactive isotope dye test is a valuable diagnostic adjunct in neurosurgical problems not only because of its high degree of accuracy in determining the presence of brain tumors but also because of its relatively precise focal localization. The possibility of prognosticating in a general fashion the relative degree of cellularity and vascularity of the tumor also appears to be feasible.

Fluorescein was believed to have a special affinity for tumor cells as early as 1911, at which time Wasserman, Keysser and Wasserman[1] used tetrabromofluorescein (eosin) as a vehicle to carry toxic selenium to the tumor for chemotherapeutic purposes. In 1929 Copeman, Coke and Gouldesborough[2] and in 1931 Copeman[3] used sodium fluorescein, both topically and intravenously, in conjunction with high voltage roentgen therapy or radium, in the study and treatment of tumors of the breast and bone. However, fluorescein was used primarily in the study of capillary permeability in diseases of the central nervous system, in the study of the blood-aqueous humor barrier and in circulation time studies.[4] Experimental studies with other vital dyes

---

Aided by the Grunow Surgical Fund

From the Department of Surgery, Northwestern University Medical School, and the Veterans Administration Hospital Radioisotope Unit

The radioiodine used in this study was supplied by the Isotope Division, Oak Ridge National Laboratory, United States Atomic Energy Commission

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own studies and do not necessarily reflect the opinion or policy of the Veterans Administration

[1] Von Wasserman, A; Keysser, F, and Wasserman, M: Beitrage zum Problem Geschwulste von der Blutbahn aus therapeutisch zu beeinflussen; Auf Grund chemotherapeutischer Versuche an tumorkranken Tieren, Deutsche med. Wchnschr. **37:** 2389-2391, 1911

[2] Copeman, S M; Coke, F, and Gouldesborough, C: Irradiated Fluorescein in Treatment of Cancer, Brit M J **2:** 233-236, 1929

[3] Copeman, S. M.: Activated (Irradiated) Fluorescein in Treatment of Cancer, Brit M. J. **1:** 658 660, 1931.

[4] (*a*) Crismon, J. M, and Fuhrman, F. A: Studies in Gangrene Following Cold Injury: Use of Fluorescein as Indicator of Local Blood Flow; Fluorescein Tests in Experimental Frosbite, J. Clin Investigation **26:** 268-276, 1947. (*b*) Gifford, H.: Use of Fluorescein Intravenously as Aid to Ophthalmic Diagnosis and Treatment, Arch Ophth. **24:** 122 131 (July) 1940 (*c*) Grafflin, A L: Excretion of Fluorescein by Liver Under Normal and Abnormal Conditions, Observed in Vivo with Fluorescence Microscope, Am J. Anat **81:** 63-116, 1947. Katzenelbogen, S The Cerebrospinal Fluid and Its Relation to the Blood: A Physiological and Clinical Study, Baltimore, Johns Hopkins Press, 1935 Lange, K, and Boyd, L. J: Technique of Fluorescein Test to Determine Adequacy of Circulation in Peripheral Vascular Disease, Circulation Time and Capillary Permeability, Bull New York M. Coll, Flower & Fifth Ave Hosps **6:** 58 81, 1943. Sicher, W. D: Circulation Time of Extremities Using Intravenous Fluorescein, Proc Staff Meet, Mayo Clin **18:** 515 521, 1943 Stocker, F. W: Experimental Studies on the Blood Aqueous Barrier: II. Electrophotometric Measurements of Fluorescein Content of Aqueous After Intr [illegible] scein, the Eye Being Under the Influence of [illegible] Neostigmine or Atropine, Arch Ophth. **37:** [illegible] ng, S. C; Painter, E. F; and Overman, R. R.: Fluorescein Circulation Time as Prognostic Sign in Experimental Traumatic Shock, J Exper Med **84:** *549 558, 1946*

on neoplastic growths in lower animals, by Ludford,[5] by Duran-Reynals [6] and by Hess [7] seem to indicate that foreign dyes localize selectively in cancer tissue, not in the cancer cell itself but in the intercellular stroma, probably as a result of the altered permeability of the stromal blood vessels. Boyland and McClean [8] and Duran-Reynals stated that this abnormally high permeability leading to the escape of dye may be increased by the "spreading factor" of cancer. The latter author also noted that localization of dye in tumor tissue takes place rapidly, within one-half hour after intravenous administration and mainly in the active nonnecrotic portion of the tumor.

Stevens and his colleagues [9] studied the distribution of radioactive iodinated trypan blue and other dye preparations in tumor-bearing mice and noted that tumor tissue showed concentration of radioactivity several times higher than skeletal muscle or skin but much lower than the liver, spleen and kidneys. We also have noted the intense relative concentration over the liver, spleen, kidneys, lungs and thyroid, which may be the result of their reticuloendothelial tissue content and relatively high degree of vascularization. Broman [10] studied vascular permeability in man by supravital staining with trypan blue and noted that the blood vessels of brain tumors lack the special permeability function of the blood-brain barrier. Zahl and Waters [11] studied the localization of acid dyes, other than fluorescein, in animal tumors and reached the conclusion that the dye seems to localize selectively in neoplastic foci, dependent on a factor associated with a local increase in capillary permeability to the dye. They noted that Evans blue accumulates much more heavily in, and is retained longer by, malignant tumors and metastases than benign tumors. They also emphasized that acid dyes localized not in the tumor cells but in the surrounding stroma, and that later they appear within the macrophages about the edge of the tumor and in the reticuloendothelial system of the liver and spleen.

A recent experimental study by Shapiro and Landing [12] on the significance of the distribution of fluorescein in SA 180 mouse tumors revealed that in 12 minutes there was a uniform, well defined fluorescence in the tumor, with concentration diminishing to zero in the other animal tissues except those which are the normal routes of excretion for the dye . At time intervals after two to three hours fluorescence was observed predominantly in the areas of necrosis. We might expect a glioblastoma or metastatic carcinoma to retain fluorescein longer in its necrotic areas and thus yield relatively high differential counts even at the third and fourth hours. This has been noted in our radiodye localization studies. In 1940 Gifford [1b] demonstrated that fluorescein is an acid-diffusible dye, about 40 per cent of which is bound to blood proteins and is not diffusible, unless the permeability of the capillaries is altered. The other 60 per cent is found in the body fluids in direct proportion to its concentration in the blood. It is rapidly excreted by the kidney and by the salivary and sweat glands. It was not until 1947 and later that Moore and associates [13] first used fluorescein as an agent in the differentiation of normal and neoplastic human tissues. In an initial report on 15 patients [14] he demonstrated the clinical usefulness of the I^{131}-labeled fluorescein in the diagnosis and localization of brain tumors. Tabern [15] developed a method for the production of stable diiodofluorescein that contained no free I^{131} or other iodinated fluorescein compounds.

TECHNIC

Stable radioactive diiodofluorescein is dispensed in a sterile 8 to 10 per cent solution, the specific gravity of which is approximately 1.5 times 10^{-5} per cent. Approximately 1.1 millicuries of the radioactive dye is injected intravenously, using appropriate radioisotopic precautions to prevent contamination of the skin of the patient and operator. The uptake in the brain is then determined by external counting with the aid of a single channel differential radiation localizer. This radiation detection equipment consists of four major components (fig. 1):

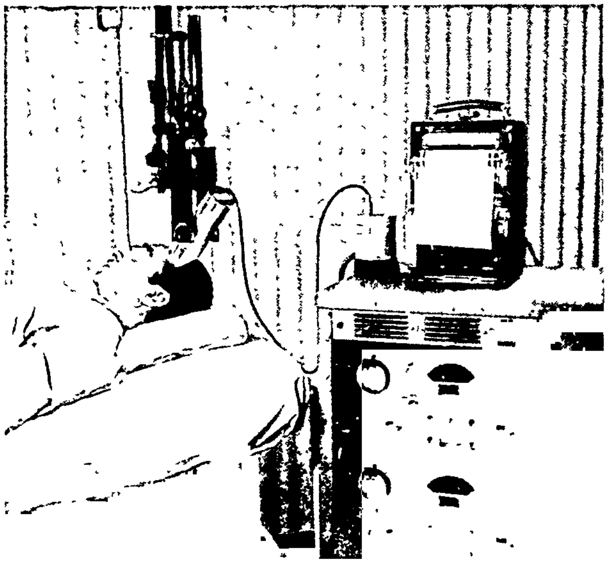


Fig. 1.—The shielded TGG 2 Geiger tube is connected through an amplifier to a General Radio Counting Rate Meter, and the counts per minute are recorded on an Esterline-Angus milliammeter. Note that the tube is maintained "normal" to the skull in this left superior precentral or frontal area (LF_3) position. Readings are at least of three minutes' duration over each site, and the most significant counting rates occur within ½ to 2 hours after the intravenous administration of 1.1 millicuries of radioactive diiodofluorescein.

1. A mica window Tracerlab TCG 2 Geiger-Mueller tube with a 250 mg/cm.^{2} aluminum cap which effectively eliminates most of the I^{131} beta radiations. The tube-sensitive diameter is 2.5 cm.

---

5. Ludford, R. J.: Vital Staining of Normal and Malignant Cells: Staining of Malignant Tumors with Trypan Blue, Proc. Roy. Soc., London, s.B. **104**: 493-502, 1929.

6. Duran-Reynals, F.: Studies on Localization of Dyes and Foreign Proteins in Normal and Malignant Tissues, Am. J. Cancer **35**: 98-107, 1939; Localization of Foreign Proteins and Dyes in Neoplastic Growth, Proc. Soc. Exper. Biol. & Med. **36**: 369-370, 1937.

7. Hess, M.: Localization of Acid Azo-Dyes in Tumors, J. Path. & Bact. **51**: 309-311, 1940.

8. Boyland, E., and McClean, D.: Factor in Malignant Tissues Which Increases Permeability of Dermis, J. Path. & Bact. **41**: 553-565, 1935.

9. Stevens, C. D.; Lee, A.; Stewart, P. H.; Quinlin, P. M., and Gilson, P. R.: The Distribution of Radioactivity in Tumor-Bearing Mice After Injection of Radioactive Iodinated Trypan Blue, Cancer Research **9**: 139-143, 1949.

10. Broman, T.: Supravital Analysis of Disorders in Cerebral Vascular Permeability in Man, Acta med. Scandinav. **118**: 79-83, 1944.

11. Zahl, P. A., and Waters, L. L.: Localization of Colloidal Dyes in Animal Tissues, Proc. Soc. Exper. Biol. & Med. **48**: 304-310, 1941.

12. Shapiro, D. M., and Landing, B. M.: Significance of Distribution of Fluorescein in Sarcoma 180 Mice, Science **108**: 304-306, 1948.

13. Moore, G. E.: Fluorescein as an Agent in the Differentiation of Normal and Malignant Tissues, Science **106**: 130-131, 1947. Moore, G. E.; Peyton, W. T.; French, L. A., and Walker, W. W.: Clinical Use of Fluorescein in Neurosurgery: Localization of Brain Tumors, J. Neurosurg. **5**: 392-398, 1948. Moore, G. E.; Hunter, S. W., and Hubbard, T. B.: Clinical and Experimental Studies of Fluorescein Dyes with Special Reference to Their Use for the Diagnosis of Central Nervous System Tumors, Ann. Surg. **130**: 637-642, 1949. Marvin, J. F., and Moore, G. E.: Localization of Brain Tumors with Radiodye: II. Experimental Evaluation of Physical Limitations, Nucleonics, 1948, vol. 3, no. 4, pp. 63-65.

14. Moore, G. E.: Use of Radioactive Di-Iodo-Fluorescein in Diagnosis and Localization of Brain Tumors, Science **107**: 569-571, 1948.

15. Tabern, D. L.: Personal communication to the author.

2. A lead shield with a thickness of 1.2 cm. This shield, in which the tube is mounted, extends 1.5 cm. beyond the end of the Geiger tube providing for a wide geometry. Maximum flexibility is achieved by attaching the shield and the tube to a 360 degree yoke and swivel, or similar device, which in turn is set on a wall-mounted dental x-ray tube arm.

3. A modified General Radio Counting Rate Meter, with a 1,000 count per minute full scale range, connected to the tube through a preamplifier.

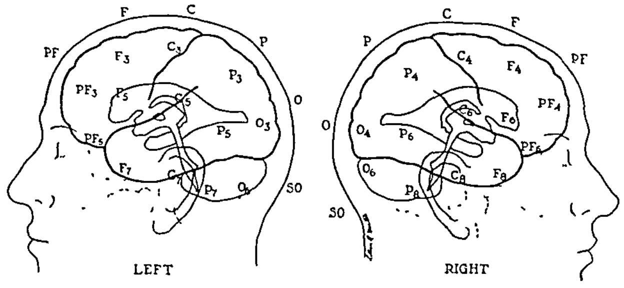


Fig 2—Note the 32 different positions surveyed with the Geiger tube, which covers every area of the skull on and above Reid's base line These include 13 positions on each side of the skull, 2 prefrontal (PF), 3 frontal (F), 3 central (C), 3 parietal (P) and 2 occipital (O), besides 6 midline positions. It is essential that at least all these areas be checked within the significant ½ to 2½ hour time interval following the radio fluorescein administration, because readings after three to four hours are only confirmatory.

4. A mechanical graphic recorder (the standard Esterline-Angus milliammeter) with a recording speed of 6 minutes per inch.

As seen from the pictorial chart (fig. 2), the survey covers at least 32 different positions on the scalp, including 13 areas symmetrically studied on each side of the skull, alternating from left to right, and 6 midline positions. In this fashion every inch of the skull on and above Reid's base line is surveyed with the counter. The Geiger-Mueller tube is placed directly on the scalp and is maintained "normal" to the skull, that is, at right angles to the tangent at the particular position under study. Readings are at least of three minutes' duration over each site and are repeated over abnormal areas at frequent intervals of time from 20 minutes to four hours after injection of the dye. The counts per minute are visually displayed and continuously recorded on the Esterline-Angus tracing, so that the abnormal concentrations can readily be diagrammatically transposed and recorded on the pictorial chart

Within a minute or two after the injection of the dye, the radioactivity at the surface of the head is at a maximum. This decreases rapidly over the next 10 to 30 minutes, until a plateau is observed. After this interval, and for the next 1 to 2 hours, the decline in counts is gradual, so that symmetric positions can be accurately studied, if care is taken in properly matching areas on each side of the skull within 3 to 5 minutes. The most significant counting rates occur within ½ to 2 hours after the administration of the radiodye; hence, suspected areas of involvement not only must be rechecked several times during this period, but also must be compared to the concentrations in adjacent areas, in order to delineate not only the main focus of the lesion but also its extent. The counting rates during this pertinent period, using the equipment described, is of the order of magnitude of 200 to 1,200 counts per minute

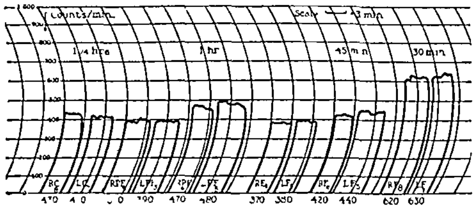


Fig 3—The normal radioactive diiodofluorescein concentrations in counts per minutes on an Esterline Angus tracing, at time intervals from 40 minutes to 1¾ hours after the intravenous administration of 1 1 millicuries of the dye Note that symmetric areas on each side of the skull are studied as simultaneously as possible within three to five minutes after a "plateau" is reached Note that in a normal patient the variations over symmetric sites are from 0 to 40 counts per minute and that those over adjacent areas have a characteristic normal variation as well Compare mid PF to mid F, mid C and mid P, or compare the left parasagittal frontal area to the left anterior temporal lobe (LF3 to LF7). Most of the non space occupying intracranial lesions fall within just such a range and include hypertensive cerebrovascular accidents, cerebral thrombosis, meningovascular syphilis, chronic arachnoiditis or ruptured cerebral aneurysm

It is essential to count at least all 32 sites, but, since there is only a limited significant time interval of about two hours, the order of the performance of the counting should vary so that the suspected areas are measured at least two to three times for greater accuracy. At the end of three to four hours the readings are only confirmatory, for the differential concentrations are no longer striking.

INTERPRETATION OF RESULTS

A range of normal concentrations has been determined for each position at various time intervals (figs. 3 and 4). If the observed concentration at all sites is greater than the upper range of normal by 100 to 600 counts per minute then a tumor should be suspected For localization of this tumor, comparisons are then made with the symmetric position on the opposite side of the skull and also with positions adjacent to the area under suspicion. In the normal subject, the counts made over symmetric sites vary from 0 to 40 counts per minute. Hence, 50 counts per minute is arbitrarily considered to be the lowest level of significance. The standard statistical error at rates of 500 and 1,000 counts per minute is 20 and 30 counts per minute, respectively. Therefore variations of more than 10 to 15 per cent are significant. It should be noted that the over-all increase of radioactivity in patients with verified brain tumors may be such that the count over the tumor itself may be 50 to 100 per cent greater than the count over the same site in a normal brain at a comparable time interval.

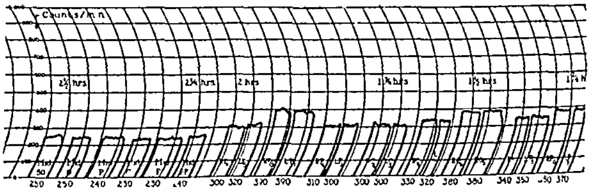


Fig 4—Continuation of the tracing shown in figure 3 at 1¼ to 2½ hours after the intravenous administration of 1.1 millicuries of the dye

From figures 3 and 4, which show normal values, it can be seen that adjacent sites have characteristic variations. The readings at the midparietal and midsuboccipital positions are 230 and 260 counts per minute, respectively, with a difference of 30. In a patient with a *verified tumor in the midsuboccipital area* (figs. 5 and 6), there were readings of 590 and 810, respectively, with a difference of 220, which is seven times the normal difference in these adjacent midline areas. Likewise, the concentration of the dye over the site of the suspected tumor was *810 counts per minute*, whereas the highest range of concentration in normal patients at the same site and for the same interval of time is only 250 counts per minute. The difference between these is 560, which is at least 10 times higher than our accepted difference of 50 counts per minute *in normal* persons. Differences of this magnitude are striking and are never seen in any but tumor patients.

Use of this method of comparison with the normal values, and with symmetric and adjacent area values for a pertinent time interval, has improved the reliability of our results and has made possible the diagnosis of midline and posterior fossa tumors.

RADIOLOGICAL HAZARD

Studies of the distribution and excretion of radioactive diiodofluorescein have been made in human beings, dogs and rats. The biologic half-life in man is two to three days. The highest concentration after the initial maximum occurs in the thyroid gland, and the dose of radiation delivered to this tissue is from 1.9 to 3.8 roentgen equivalents. This dose of radiation is substantially less than that received by patients tested with 50 microcurie doses of radioiodine in studies of thyroid function. The other tissues of the body retain considerably smaller amounts of the radiodye, and in none of the dogs was significant radioactivity detectable seven days after the administration of 25 microcuries per kilogram, or twice the usual dose in human subjects. We believe that there is no significant hazard to the patient from the use of diiodofluorescein in amounts of 1.0 to 2.0 millicuries.

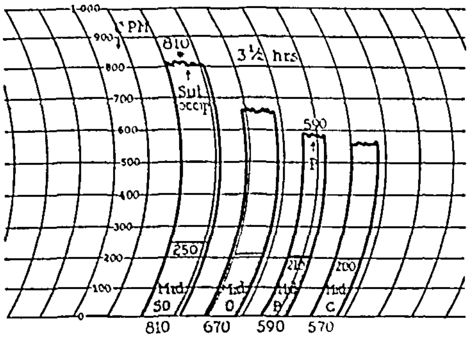


Fig 5.—Patient D C clinically showed signs and symptoms of a right parietal lobe neoplasm Ventriculography was equivocal, demonstrating only mildly enlarged lateral ventricles The radioactive fluorescein study revealed a high tumor concentration especially in the posterior fossa and upper part of the cervical cord At surgical intervention, a vascular mixed cell astrocytoma was partially removed from this site Note that 3½ hours after administration of the radiodye the concentration in the middle posterior fossa or midsuboccipital (SO) area is 810 counts per minute, which is 220 counts per minute more than the adjacent mid parietal area (P = 590), a difference seven times the expected normal variation of 30 counts per minute at this period of time Also note that the total concentration of 810 is 560 above the highest normal value of 250 (see shaded area) ever noted for the midsuboccipital area at 3½ hours These readings are highly significant of a vascular and cellular tumor.

CLINICAL EXPERIENCES

There were 95 histologically verified space-occupying lesions of the central nervous system; 40 of these were gliomas, 13 were meningiomas and 13 were metastatic carcinomas and sarcomas. The remaining 29 included 6 tumors of the spinal cord, 7 tumors of the hypophysis, 2 hemangioblastomas of the cerebellum, 1 acoustic neurinoma, 1 melanoblastoma, 3 unclassified intracranial tumors, 4 subdural hematomas, 2 cerebral abscesses, 1 porencephalic cyst, 1 arteriovenous fistula and 1 granulomatous cyst. In these 95 patients, 86 (91 per cent) lesions were accurately diagnosed as organic and localized with radioactive fluorescein, while only 4 diagnoses were completely inaccurate. The other 5 were inaccurate only so far as the nature of the lesion was concerned but were accurate in respect to localization of the lesion. Thirty-eight of the 40 gliomas studied were accurately diagnosed, and these included 20 glioblastomas, 16 astrocytomas, 3 oligodendrogliomas and 1 ependymoma. The 2 gliomas diagnosed inaccurately were in the cerebellum, and each was composed of a large, single cyst. By radioactive assays we have shown that the liquid contents of such cysts contain even less radiodye than the normal brain.

Besides these 95 microscopically verified space-occupying lesions, there were 15 grossly verified presumptive gliomas which were surgically treated and proved to be inoperable and are, at this time, microscopically unverified. All these lesions were accurately diagnosed and localized with the radiodye test. These included lesions of 10 patients with brain stem tumors, 5 of whom had ventriculocysternostomy performed and 5 deeply-seated temporal lobe tumors close to the midline.

Of the total of 110 microscopically and grossly verified space-occupying lesions, 101 (92 per cent) were accurately diagnosed and localized by means of the radioactive isotope tracer test. This exceeds by far the accuracy of all other neurosurgical tests or procedures, particularly with regard to localization. Added to this group of 101 are 18 patients with presumptive space-occupying lesions in whom this method corroborated the clinical and roentgenologic diagnoses Lesions of these patients await surgical verification and/or further observation. The remaining 72 of the 200 tumor-suspect patients were thought not to have a space-occupying lesion by this test, and this diagnosis was supported by surgical exposure in 13 instances, air studies in 54 instances and/or angiography in 5 instances. Of these, only 1 yielded a positive dye concentration in the absence of tumor

Clinically, this patient had the typical signs and symptoms of a cerebellar pontine angle tumor. The radiodye test also localized the tumor in this region However, suboccipital craniectomy revealed no tumor but only a mass of dilated blood vessels and fibrous tissue, which was considered to represent a chronic infectious process. These pathological changes were the cause of the clinical signs and symptoms, and the abnormal blood vessels were probably responsible for the slight but persistent uptake of radioactive fluorescein

In all 200 cases there were only nine proved inaccuracies, making a total accuracy of 95.5 per cent for the radioactive diiodofluorescein test. Eight of the nine were intracranial lesions, and all but one were also inaccurately diagnosed by clinical examination, electroencephalography and pneumography. The first patient has been discussed in the preceding paragraph.

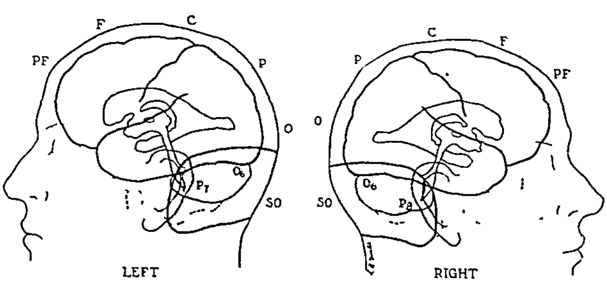


Fig 6.—Pictorial chart used for recording the graphic record seen in figure 5, in which the abnormal concentrations are diagrammatically transposed and recorded

The second of these patients had clinical signs pointing to a left frontal lobe tumor extending in butterfly fashion across the corpus callosum The radiodye concentration was slight but persistent in the right temporal lobe. The patient was scheduled for a large left frontotemporal craniotomy, but before surgical intervention could be performed the patient expired suddenly during a bout of coughing. Autopsy revealed an astrocytomatous cerebellar cyst without a mural nodule and with no evidence of any lesion in either cerebral hemisphere

The third patient had clinical, roentgenologic and radiodye evidence of a lesion in the right hemisphere consistent with a diagnosis of subdural hematoma. At surgical intervention an encapsulated hemorrhagic mass was removed at the site indicated by the radiodye test. Microscopic examination revealed a metastatic hypernephroma with extensive cyst and hematoma formation, which no doubt accounted for the diminished concentration of radiodye. Later, a fluorescein restudy revealed an extensive lesion, typical of metastatic carcinoma, whose plotted extent coincided accurately with the actual size and extent of the tumor in the right temporal lobe, as proved at autopsy.

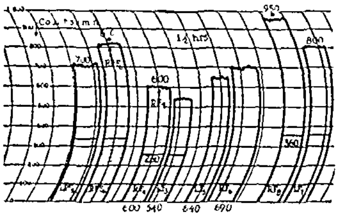


Fig 7

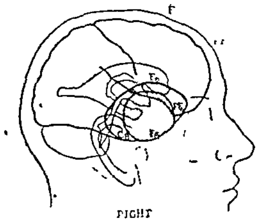


Fig 8

Fig 7—A portion of the actual tracing 1½ hours after the intravenous injection of 1 1 millicuries of radiodye The significant value, 950 counts per minute is marked by an asterisk and was obtained over position RF_8 (right middle cranial fossa, on Reid's base line) The highest value found in a normal patient in this position at this particular interval of time is shown by the shaded portion, i e, 360 counts per minute *Over the symmetric site on the opposite side of the skull* (LF_7) there were 800 counts per minute The right posterior inferior frontal area (RPF_6) registered 820 counts per minute as against only 700 over the same symmetric area on the opposite side (LPF) Also note that the adjacent sites RF_8 (950 counts per minute) and RF_4 (600 counts per minute) at the base and vertex respectively, of the right middle cranial fossa, show a wide difference of 350 as compared to a normal difference of 100 over the same sites in a normal patient The tracing therefore indicates a lesion, deep in the middle fossa, which is relatively highly vascular and cellular.

Fig 8—Pictorial chart of the graphic record in figure 7, showing the *lesion at the base of the middle fossa on the right* (RF_8), extending interoinferiorly to area RPF_6.

The fourth patient appeared to have, clinically, roentgenologically and by radiodye studies, a lesion in the right parietotemporal area. However, when surgical operation was performed a small, well encapsulated subdural hematoma was discovered, exactly occupying the site designated. On microscopic examination, the capsule was found to be exceedingly thick and to contain a great many newly formed capillaries The latter probably accounted for the relative increase of radiodye in this area.

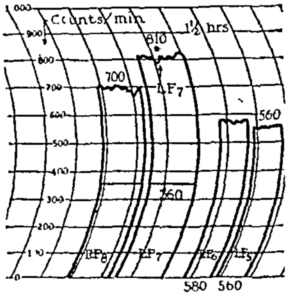


Fig 9

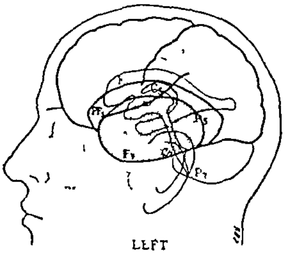


Fig 10

Fig 9.—A portion of the graphic tracing at the site of an extensive glioblastoma multiforme in the left temporal lobe, proved both at surgery and later at autopsy to be accurate in its focal localization The radiodye concentration at LF_7 is 810 counts per minute 1½ hours after administration, as *compared to 700 at* RF_8, the same basilar position on the opposite side, a difference of 110 counts per minute The shaded portion again represents the highest range of normal for this position (360 counts per minute) The difference of 450 counts per minute is striking, and is highly significant of tumor Note that the adjacent positions LF_6 (580) and RF_6 (560) show 200 counts per minute less than the tumor area LF_7 (810) and differ only 20 counts per minute from one another.

Fig. 10—Pictorial representation of the graphic tracing seen in figure 9, showing the actual extent of the large tumor in the left temporal lobe, which was verified surgically and at autopsy as a glioblastoma multiforme

The fifth patient had generalized Hodgkin's disease with vague clinical involvement of the spinal cord and with a myelographic block at the seventh dorsal vertebra Laminectomy revealed an extensive extradural tumor at that level The radiofluorescein concentration appeared to be more intense in the lumbar and sacral areas, and this corresponded to the involvement of mesenteric and paraaortic nodes, which had recently been treated with high voltage roentgen radiation The diagnosis of tumor was correct, therefore, but the localization was accurate only for the abdominal area of the spine and not for the thoracic spinal involvement.

The sixth patient was struck on the head a week previous to examination but had no period of unconsciousness His only complaint was headache. He had no other symptoms or signs except a questionable right facial weakness. Pneumoencephalography revealed *an equivocal shift of the ventricles to the left* The radiodye concentrations were persistently high in the middle *cranial fossa, slightly greater on the right than on the left,* and were consistent with a diagnosis of tumor in the temporal lobe area Surgical intervention revealed bilateral subdural hematomas in the middle fossa. Hence, it is possible that in this case of recent trauma, with its associated disturbance in cerebral capillaries, there was an increased exudation of radioactive fluorescein, accounting for the high counts seen in this patient As we learned later, repeated studies in recent post-traumatic cerebral lesions reveal a decreased dye concentration within seven to 10 days, in contrast to neoplastic lesions, which show the same or an increased concentration. We believe that, in future patients in whom trauma is an etiological factor, we will be able to avoid such errors by repeating the radiodye test.

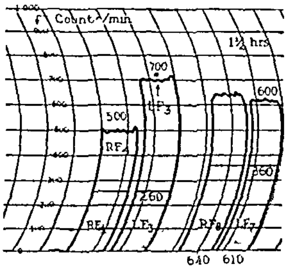


Fig 11

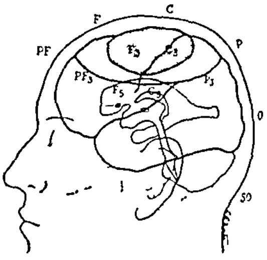


Fig 12

Fig 11—The site of the highest radiodye concentration is the LF_3, or left parasagittal precentral area, where the counts per minute are 700 as *compared to 500 on the right side,* RF_4 *Normally, a difference* of only 40 counts per minute exists The adjacent basilar site is usually 100 counts per minute higher at this period of time (1½ hours): however, in this instance the parasagittal vertex reading is 90 counts higher than LF_7 (610), showing a complete reversal from the normal dye concentrations

Fig. 12.—Pictorial chart corresponding to figure 11. This space occupying lesion was accurately outlined by the radiodye concentrations and proved at surgery to be a meningioma The shaded area represented that portion of the tumor which was superficial The remainder of the outlined area was occupied by the meningioma which was present beneath the cortex

The seventh patient, a man aged 41, had had a pneumonectomy performed three weeks previously for the removal of a verified bronchogenic carcinoma. His only complaint was two generalized seizures four days before admission. The neurological examination revealed completely normal conditions as did the spinal fluid studies. The radiodye concentrations were at the upper limits of normal without pertinent localizing signs However, pneumography showed a definite shift of the left lateral ventricle to the right with a large defect in the left posterior temporal lobe. Craniotomy revealed a well encapsulated, firm tumor nodule which was the size of a walnut. Several weeks later autopsy revealed that the entire left temporal lobe was occupied by a decidedly necrotic, centrally cystic, metastatic carcinoma. Even the thin peripheral rim of tumor tissue showed evidence of severe liquefaction necrosis. This tends to corroborate further that it is only the actively growing tumor which concentrates the radiodye, since the cystic portions actually have a diminished uptake.

The last two of these nine patients demonstrated this feature most completely. Both had cystic tumors of the posterior fossa: one was a tremendous cyst with a small astrocytomatous mural nodule, and the other was a nonspecific granulomatous cyst with a thickened, white, avascular capsule. In both of these instances the radiodye concentrations were even lower than those for the adjacent normal brain tissue. When the preponderance of cyst fluid over tumor cells and tumor capillaries is too great, the radiodye concentrations are not significantly increased even though a small tumor nodule may coexist with the large cyst. However, in the greater number of instances, even in the multicystic, relatively avascular astrocytomas, there is usually a sufficient number of neoplastic cells and capillaries to result in a recordable, pertinent, differentiating radiodye concentration. In only one instance did a simple cyst reveal its presence by a slight focal concentration of radiodye. This was in a patient with a traumatic porencephalic cyst in which the differential concentration was quite definite but at the lowest level of significance. Added to this was the fact that the record was taken 5 days after pneumoencephalography was performed; the latter in itself will cause a slight generalized increase in radiodye concentration, probably the result of the irritative effect of residual intraventricular oxygen on the adjacent cerebral capillaries.

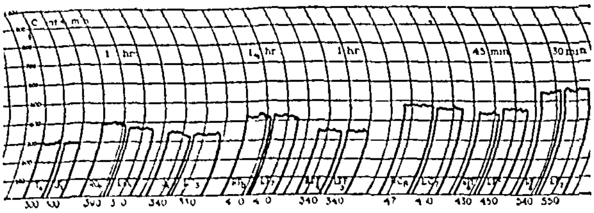


Fig 13.—Normal tracing obtained in L. J., a patient aged 25 with clinical symptoms and signs of a neoplasm in the right frontal lobe. The radiodye concentration counts were within normal limits from ½ to 2½ hours after injection of the dye. This tracing made in the ½ to 1¼ hour interval did not support the diagnosis of a space occupying lesion in the right frontal lobe.

RELATIONSHIP OF THE RADIODYE CONCENTRATION TO THE HISTOPATHOLOGY OF CENTRAL NERVOUS SYSTEM TUMORS

There appeared to be a definite gradation of differential counts per minute over symmetric areas of the skull, as also when contrasted with the normal values at the same interval of time, and this was related not only to the degree of malignancy of the tumor but even more so to its angioarchitectural pattern and its degree of anaplasia. Metastatic carcinomas and sarcomas (figs. 7 and 8) gave counts in the highest differential range. Next were the glioblastomas (figs. 9 and 10), in which the concentration of radiodye appeared to be definitely related to the degree of endothelial or adventitial proliferation of the capillaries and to the disturbed permeability of their endothelial cells. For example, the angioproliferative glioblastomas[16] showed a lower range of counts per minute difference between symmetric areas of the skull than did the angiothrombotic types. Next in the differential range were the vascular and cellular meningiomas (figs. 11 and 12), with the more fibrous hyalinized types giving lesser degrees of radiodye concentration. The patients with astrocytoma and oligodendroglioma showed the lowest differential count of all the tumors. This appeared to coincide directly with the relative microscopic scarcity of capillaries in these tumors. However, recurrent gliomas had a much greater uptake of dye, and this was consistent with their increased cellularity and vascularity.

At the base of the scale of radiodye concentration were the chronic subdural hematomas and the extensively cystic tumors. It was noted that in the acute stage of a hemorrhage the concentration over the focal site never reached the heights seen in tumors; if the radiodye test was repeated within two to three weeks, the concentrations were as normal as in the chronic hematomas. Undoubtedly, the cerebral edema and disturbed vascularity in the acute stage accounted for the temporary increase of radiodye. In tumor patients, on the contrary, repeat studies revealed an increase instead of a decrease in dye concentration.

Three instances of subarachnoid hemorrhage secondary to a ruptured intracranial aneurysm showed normal readings. Because of the presence of papilledema these patients were clinically considered to be tumor suspects. One of these (figs. 13 and 14) even had a craniotomy performed because electroencephalography, ventriculography and angiography all pointed to a space-occupying lesion in the right frontal lobe. However, operation revealed an aneurysm of the anterior cerebral artery, visualized on the floor of the anterior cranial fossa, as well as multiple areas of old intracerebral hemorrhagic softening. Biopsy specimens of normal and neoplastic brain tissue are being assayed in our radioisotope laboratory. Preliminary results tend to confirm our impressions obtained by external counting; namely, cysts contain less dye than normal brain, while tumors contain more dye, dependent on their degree of cellularity and vascularity.

RELATIONSHIP TO PREOPERATIVE DIAGNOSIS

Clinically, a focal diagnosis of lobe involvement was made in 54 of the patients and a more diffuse localization was made of hemispheric involvement in another 14. Previous to confirmation by air studies, there were 64 patients in whom the preoperative clinical impressions were inaccurate. In many of these the radiodye test proved of particular value, especially in patients with papilledema, where the differential diagnosis between intracranial neoplasm, hypertension, arachnoiditis and intracranial aneurysm was especially difficult despite the aid of electroencephalography, pneumography and angiography. The radioisotope tracer studies confirmed the localization and diagnosis made clinically in all but 5 per cent of patients. In 7 of the 9 patients whose condition was inaccurately diagnosed by radiodye studies, the clinical signs and symptoms were also inaccurate. At times difficulty was encountered in differentiating a

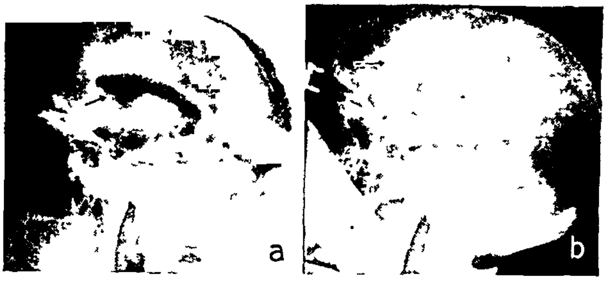


Fig 14.—Ventriculogram (left) and angiogram (right) of patient L. J., whose tracing is shown in figure 13, reveal a space occupying lesion in the right frontal lobe.

---

[16] Davis, L., Martin, J., Goldstein, S. L., and Ashkenazy, M.: A Study of 211 Patients with Verified Glioblastoma Multiforme, J. Neurosurg. 6: 33-44, 1949.

posterior fossa tumor from one in the frontal lobe. In two such instances, in which the clinical diagnosis of right frontal lobe neoplasm and of right parietal lobe neoplasm was made, radioactive fluorescein studies revealed high concentrations in the right cerebellar and in the midsuboccipital areas. Ventriculography revealed only a moderate hydrocephalus in each case. At surgical intervention a cystic hemangioblastoma and a mixed cell astrocytoma were removed from the sites postulated by the positive radiodye test.

RELATIONSHIP TO ELECTROENCEPHALOGRAPHY

Electroencephalographic studies were performed in 110 of the 200 patients; a slow wave focus diagnostic of tumor was made in 30, while a more diffusely localizing diagnosis was made in 8. There were 26 patients with intracranial tumors and 10 without tumors who had normal or falsely localizing electroencephalograms. Lesions of these patients included 5 glioblastomas, 4 meningiomas and 2 astrocytomas in the cerebral hemispheres, 5 brain stem tumors, 4 pituitary tumors and 2 hemangioblastomas, 2 metastatic carcinomas and 2 astrocytomas in the posterior fossa. In all 36 cases of electroencephalographic inaccuracies the radiodye studies were accurate. For the most part, even the focal diagnosis made by electroencephalography was never as precisely localizing as either the pneumographic or radiodye studies. Frequently there was a wide spread of the response from the involved lobe. Even when localization by electroencephalography was positive, it was sometimes difficult to determine whether the slow wave focus was due to a neoplasm, cerebral hemorrhage, subdural hematoma or contusion of the brain.

RELATIONSHIP TO PNEUMOENCEPHALOGRAPHY AND VENTRICULOGRAPHY

Air studies were performed in 121 of the patients. In 30 of these a focal lesion was localized; in another 27 a more diffuse lesion was localized. The remaining 46 patients had normal air study films. There were 18 inaccuracies. In 10 of these the clinical observations and encephalograms were sufficiently suggestive of tumor that it required 8 craniotomies and 3 suboccipital craniectomies to rule out such a lesion. In all but one instance the radiodye test proved correct. Of the 8 patients who had negative air studies in the presence of a verified tumor, all but one of these had their lesions accurately diagnosed by the radiodye test as tumors.

We believe that radioactive dye studies, by their more precise localization as to lobes, have proved of great value to the neurosurgeon, especially in that group of 27 patients in whom air studies revealed only a diffuse hemispheric involvement. In many cases, filling of the ventricles is difficult or incomplete owing either to technical difficulties or to anomalous or blocked foramens of Magendie or Luschka. In ventriculography poor filling may result from the massiveness of the space-occupying lesion or the severe surrounding edema, features commonly found in glioblastomas or metastatic tumors. Pneumoencephalography, with its severe headaches and occasional shock, as a whole is an exceedingly discomforting procedure as far as the patient is concerned. This is in contrast to the relative harmlessness and simplicity of the radiodye test. As is also well known, ventriculography in itself, though accurate, is not altogether a harmless procedure, and a certain percentage of deaths from this cause alone are recorded in all neurosurgical clinics.

RELATIONSHIP TO OPERABILITY

Surgical operations were performed on 124 patients, and space-occupying lesions were found in 110 instances, 95 of which were microscopically verified. There were 10 patients in whom a tumor was not found at operation, and in only one of these did the radiodye test show tumor localization. In a man aged 57 with a history of recent onset of headaches, dizziness, tinnitus and poor vision, and with evidence of an enlarged sella turcica, ventriculography revealed a hydrocephalus, and a diagnosis of posterior fossa neoplasm was made, despite a negative radiofluorescein test. A suboccipital craniectomy revealed no evidence of tumor. A ventriculocysternostomy was performed because a midline tumor was still postulated. Later, the patient had further visual field changes and a left central facial paresis. It was then believed that he had a pituitary neoplasm, despite the normal radiodye test. A right transfrontal craniotomy was then performed, and again no tumor was found; only evidence of perichiasmal arachnoiditis was seen. The absence of a tumor was verified later at autopsy. In this one patient two major surgical procedures were performed because of the strong clinical and pneumographic evidence of tumor, although none existed as demonstrated by the normal radiodye concentrations.

On the basis of multiple foci of radiodye concentration we have been able to predict accurately the presence of metastatic lesions in 50 per cent of the cases in our series of metastatic carcinomas and sarcomas. In one patient both a left temporal and a right postcentral tumor focus were noted with the radiodye test, although clinically he presented signs only of an obvious left cerebral expanding lesion. One month after the removal of a left temporal anaplastic carcinoma, there developed a left hemiparesis, which was even more pronounced than that on the right, thus clinically supporting the preoperative radiodye evidence of another focus in the opposite hemisphere. Postoperative studies were performed in about 60 per cent of the tumor patients, and thereby we have been able to prognosticate the extent of recurrences of intracranial tumors. These have correlated well with either the progressive or regressive clinical signs and symptoms as well as with the various types of surgical attack and the degree of completeness of removal of such tumors at operation. In four patients with a meningioma, an oligodendroglioma, a hemangioblastoma and a glioblastoma multiforme the tumor was well demarcated at surgical intervention and could be removed completely. In these cases our postoperative studies revealed no tumor concentration, although preoperative studies showed a positive concentration typical of that particular type of tumor.

In the cases of partial excisions of the tumor postoperative studies revealed evidence of tumor concentration, and in practically all these instances the uptake was more intense and appeared earlier than in the preoperative studies. This may be significant of increasing malignancy of the lesion after surgical intervention, a fact fairly well substantiated clinically and histopathologically, especially in those patients with glioblastoma multiforme who appear to go downhill rapidly after a surgical operation. On the other hand, the associated decompression performed by the removal of the bone flap tends to cause the tumor to gravitate toward the surface, which is now the area of least resistance. In this instance, the inverse square law of electricity comes into effect and may be the cause of the increase of the differential count, merely as the result of the more superficial position of the tumor. This was found to be especially true in those patients who had deep-seated lesions situated near the midline at the time of surgical intervention. However, that the absence of the bone in itself is not the underlying cause of the increased count is shown by the fact that there was no significant difference in counts recorded in the three patients of the four with completely resectable tumors mentioned above, when the overlying bone was removed for decompression purposes.

RELATIONSHIP TO HIGH VOLTAGE IRRADIATION

High voltage roentgen therapy does not seem to have any effect on the absorption of radioactive fluorescein by normal brain tissue or by the more benign gliomas. One patient had a grossly encapsulated oligodendroglioma removed almost completely. Postoperative studies four weeks later revealed only 60 counts per minute differential at the tumor site. This was about one third of the difference noted on his preoperative study and was significant of a slight residuum of tumor tissue which was probably deeply located. The radiodye test performed two weeks after high voltage irradiation again showed no increased uptake of dye. However, the exact opposite was noted in the more infiltrating and vascular tumors. For example, in six patients with glioblastoma multiforme and one with metastatic carcinoma, studied after radiation therapy, the uptake was decidedly increased and was persistent at frequent time intervals; also, it appeared much earlier after the intravenous administration of the dye than it had preoperatively. As noted by Davis and Weil,[17] high voltage roentgen therapy in some glioblastomas may cause striking histopathological changes in the parenchymal cells as well as in the stroma and blood vessels. This tends to increase the already altered permeability of these smaller capillaries and leads to an increased exudation of radiofluorescein dye. To the effect of high voltage roentgen therapy must be added the concurrent effect of removal of the bone flap, which is usually complete in glioblastomas and metastatic tumors.

RELATIONSHIP TO TUMOR SITE

Accuracy was consistent in the superficially located tumors, especially the meningiomas, with the differential count being both high and persistent. This was true not only in the cerebral hemispheres but also in the posterior fossa in such tumors as hemangioblastomas, astrocytomas and metastatic carcinomas. If the tumor proved to be a glioblastoma or a metastatic carcinoma or sarcoma, the site seemed to make little difference; the dye concentration was always sufficiently intense to make diagnosis certain. However, in the case of tumors close to the midline in the region of the hippocampal gyrus, or in the region of the pituitary, hypothalamus or upper part of the brain stem the differential counts were much lower, because of the action of the inverse square law of electricity as the distance from the skull to the tumor increased. Of added aid in such cases was the high differential count in homolateral readings from the parasagittal areas to the base, in the middle fossa in particular, since the symmetric skull readings were equal.

The clinically silent areas of the brain such as the anteromedial aspect of the temporal lobe or posterior-inferior frontal lobe have been relatively easy to diagnose with the aid of this radioactive diiodofluorescein test, even when the electroencephalographic and pneumographic studies were equivocal. A woman aged 58 had generalized seizures of one year's duration, with minimal nonlocalizing signs. Results of electroencephalography were normal, while pneumoencephalography showed only widened subarachnoid spaces indicative of cerebral atrophy. The radiodye studies revealed a persistent concentration typical of a tumor in the right temporal lobe. Craniotomy revealed no evidence of increased intracranial pressure; in fact, there was atrophy of the temporal lobe with softening. A gross diagnosis of cerebral softening was made, until the microscopic sections revealed a fibrillary astrocytoma.

RELATIONSHIP TO SPINAL CORD TUMORS

Eleven patients suspected of having a spinal cord neoplasm were studied. Six of these had verified tumors, two of which were ependymomas, one chordoma, one lymphosarcoma, one lymphoblastoma and one metastatic carcinoma. The radiofluorescein test was accurate in five of these but in the other one only partially so. The other five patients revealed no concentration of radiodye typical of tumor, and the absence of a space-occupying lesion was proved by laminectomy. Within the spinal cord the problems of diagnosis and localization are much more difficult, because gamma radiations are also being recorded from the adjacent liver, spleen, lungs and intestines. Hence, for greater accuracy it is important to have as a control a patient of almost equal weight and stature. This problem is being further pursued, and it appears likely that at the present stage of instrumentation, only tumors far removed from the chest and abdomen, that is, in the cervical and lower lumbosacral regions of the spine, will be accurately localized with the radiofluorescein test.

SUMMARY

In 200 patients suspected of having central nervous system tumors, studied by means of radioactive diiodofluorescein, the results reveal a 95.5 per cent accuracy in diagnosis in lesions verified by surgical intervention or corroborated by pneumography or angiography. The technic is simple, and instrumentation consists of a Geiger-Mueller tube, a counting rate meter and mechanical graphic recorder. There was a 91 per cent accuracy in the 95 histologically verified space-occupying lesions of the central nervous system, which included 40 gliomas, 13 meningiomas, 13 metastatic carcinomas and sarcomas, 7 pituitary tumors, 6 spinal cord tumors, 2 cerebellar hemangioblastomas, 1 acoustic neurinoma, 1 melanoblastoma, 3 unclassified tumors, 4 subdural hematomas, 1 porencephalic cyst, 2 cerebral abscesses, 1 arteriovenous fistula and 1 granulomatous cyst. A positive radiodye test was recorded in five of the six verified tumors of the spinal cord.

---

[17] Davis, L., and Weil, A.: The Effect of Radiation Therapy upon Intracranial Gliomata, Ann. Surg. **106**: 544-616, 1937.

The affinity of radioactive dye for tumor tissue was related to the cellularity and vascular pattern of the tumor. The more malignant the neoplasm, the greater was the radiofluorescein concentration. Metastatic carcinomas and sarcomas gave counts of the highest differential range. Next were the glioblastomas and the vascular cellular meningiomas. The astrocytomas and oligodendrogliomas showed the lowest differential count of all the tumors, coinciding directly with the relative microscopic scarcity of capillaries in these tumors.

There was little or no concentration of dye over the site of chronic subdural hematomas, because these are relatively avascular lesions. The radiodye concentrations over large cysts are even lower than over adjacent normal brain tissue. In a cystic degenerative tumor only the actively growing tumor tissue concentrates the radiodye, whereas the cystic portions actually have a diminished uptake. In areas where the preponderance of cyst fluid over tumor cells and tumor capillaries was too great, the radiodye concentrations were not significantly increased and gave rise to most of the errors encountered with this method.

The negative results also proved to be 95 per cent accurate and were of equal importance in the differential diagnosis of cerebral neoplasms, especially from such lesions as hypertensive cerebrovascular accidents, perichiasmal arachnoiditis, meningovascular syphilis and intracranial aneurysms.

Localization by the radiodye method proved to be much more precise than with electroencephalography or pneumography, whenever verification was obtained at surgery or at autopsy. Pneumography was 63 per cent focally accurate, and electroencephalography was only 45 per cent focally accurate. Tumor recurrences could be demonstrated readily with this technic. Postoperative high voltage roentgen therapy caused an increased concentration of radioactive diiodofluorescein in the more malignant intracerebral neoplasms. Special technics of counting have been evolved, so that the accuracy of localizing midline tumors, such as those of the pituitary, brain stem or posterior fossa, is as accurate as that of localizing the more superficially situated cerebral neoplasms.

With the apparatus and technic described above, the limitations of the test have proved to be few, provided due regard is had to accurate consistent placement of the Geiger tube on the skull and provided suspicious areas are rechecked and compared to symmetric and adjacent areas of the skull. Space-occupying lesions in every area of the skull have been localized accurately. Occasionally, localization was more diffuse, and even lateralization was difficult; in all these cases the tumor was at or near the midline or had actually crossed the midline; in several instances lesions which showed no localizing symptoms on clinical examination of the patient and in which pneumography was of no aid were accurately localized with the radiodye test, as proved at operation or autopsy.

We believe that the radioactive diiodofluorescein tracer test is a simple, safe, painless and reliable method for the localization and diagnosis of brain tumors, and one which should grow in value as increasingly more sensitive detection equipment and more specific radiodyes become available.

700 North Michigan Avenue (11).

RELIEF OF ANGINA PECTORIS BY SYMPATHECTOMY

Report of Results in Ten Patients Subjected to High Thoracolumbar Sympathectomy Including the Anginal Pathway

JAMES A. EVANS, M.D.
JAMES L. POPPEN, M.D.
and
JAMES B. TOBIAS, M.D.
Boston

In April 1948 Evans and Bartels,[1] in reviewing the results of high thoracolumbar sympathectomy for essential hypertension, expressed dissatisfaction with the fact that anginal pain had been relieved in only 11 (73 per cent) of 15 patients subjected to the usual resection (fourth thoracic to second lumbar ganglions) of Poppen. For patients with severe angina we resolved in the future to remove a greater part of the anginal pathway which had been demonstrated by White, Garrey and Atkins[2] in the dog to include the first four thoracic sympathetic ganglions. Removal of these ganglions had been performed by Lindgren and Olivecrona[3] in 71 patients with angina pectoris, not all of whom had hypertension, with complete relief of pain in 44 per cent and partial relief in 41 per cent. White and Bland[4] reported that their results in 8 patients, 2 of whom had hypertension, showed that "resection limited to the upper three thoracic ganglions is nearly certain to afford complete relief of pain on the side of operation." Klemme[5] believed that his experimental work in dogs showed that the first thoracic ganglion could be spared and relief of anginal pain and coronary vasospasm achieved by removal of only the second through the fifth ganglions on the affected side. He reported one case in which this had been true.

Our own experience that a large percentage of hypertensive patients obtain relief of anginal pain without having resection of even a part of the so-called anginal pathway has been borne out by others. Peet,[6] reporting operations to the eighth thoracic ganglion as the upper level, stated: "Angina pectoris, either in a mild or severe form, occurs commonly in hypertensive patients. It may be the result of simple coronary spasm but in many it is probably due to actual arteriosclerosis of the coronary vessels. Particularly . . . when the hypertension is of long duration . . . the patient with anginal attacks has certainly a much graver prognosis. Fortunately many patients with angina pectoris have complete relief following splanchnicectomy."

Peet reported two cases of angina; one patient obtained relief for 10 years, the other had coronary occlusion before operation but no pain for five years after surgical intervention. The same author again wrote[7] that resection to the seventh or eighth thoracic

---

From the Lahey Clinic, Department of Internal Medicine (Dr. Evans), Department of Neurosurgery (Dr. Poppen) and fellow in internal medicine (Dr. Tobias).

[1] Evans, J. A., and Bartels, C. C.: Results of High Dorsolumbar Sympathectomy for Hypertension, Ann. Int. Med. **30**: 307-329 (Feb.) 1949.

[2] White, J. C.; Garrey, W. E., and Atkins, J. A.: Cardiac Innervation: Experimental and Clinical Studies, Arch. Surg. **26**: 765-786 (May) 1933.

[3] Lindgren, I., and Olivecrona, H.: Surgical Treatment of Angina Pectoris, J. Neurosurg. **4**: 19-39 (Jan.) 1947.

[4] White, J. C., and Bland, E. F.: Surgical Relief of Severe Angina Pectoris, Medicine **27**: 1-42 (Feb.) 1948.

[5] Saccomanno, G.; Utterback, R. A., and Klemme, R. M.: Anatomic Data Regarding Surgical Treatment of Angina Pectoris, Ann. Surg. **125**: 49-56 (Jan.) 1947.

[6] Peet, M. M.: Hypertension and Its Surgical Treatment by Bilateral Supradiaphragmatic Splanchnicectomy, Am. J. Surg. **75**: 48-68 (Jan.) 1948.

[7] Peet, M. M.: Results of Bilateral Supradiaphragmatic Splanchnicectomy for Arterial Hypertension, New England J. Med. **236**: 270-277 (Feb. 20) 1947.

ganglion gave striking relief of anginal pain and palpitation. Some patients were completely relieved. In a few instances the electrocardiogram again became normal.

Peet[8] affirmed his belief that resections of the sympathetic chain to an upper level of the eighth thoracic ganglion together with splanchnicectomy help angina by relieving strain. He entirely relieved 14 patients of angina for five years. Of 68 patients with hypertension who had angina, 42 (62 per cent) survived five to 12 years, and half of these, or 31 per cent, obtained definite relief; 14 patients had complete relief of angina for five years or more. None of Peet's operations involved the anginal pathway.

During the course of several years, Grimson[9] performed so-called total sympathectomies on 133 hypertensive patients. This operation includes the anginal pathway. All but two of 33 patients with precordial pain in this group of 133 hypertensive patients were relieved. He stated: "Since the operation interrupts both nervous pathways conducting pain from the heart and sympathetic cardiac accelerators, elimination of these complaints is expected in all cases. The exceptional persistence in the few might be explained by error in subjective observations."

Smithwick[10] corroborated Grimson's observation in a group of 15 hypertensive patients with angina on whom he performed thoracic sympathectomy and splanchnicectomy to the level of the first thoracic ganglion.

OBSERVATIONS ON THE ANGINAL PATHWAY

The so-called anginal pathway is well accepted as passing through the inferior cervical ganglion (first thoracic) and those ganglions below it, including the fourth thoracic (fig. 1). The early resections of the cervical ganglions as pioneered by Jonnesco[11] proved failures because, as now known, direct fibers pass from the cardiac plexus to the second and third thoracic ganglions. According to White and Bland[1] the afferent pain fibers stimulated by cardiac anoxia and running in the middle and inferior cardiac nerves are all concentrated through the inferior cervical ganglion or stellate ganglion and the first thoracic ganglion usually fused with the stellate. There are also direct connections from the cardiac plexus passing through the second and third thoracic and probably the fourth thoracic ganglions.

It is not certain, according to White, whether pain fibers from the heart pass through the fourth thoracic ganglion. We are inclined to believe that they do because by extension of the resection level in splanchnicectomies for hypertension with angina pectoris from a point below the fourth thoracic ganglion invariably to include this ganglion the relief of anginal pain was raised from 12.5 to 73 per cent. This notable increase in satisfactory results cannot be the result solely of relief of the cardiac load from drop in blood pressure or of prolonged rest after operation. White and Bland[1] noted one case in which it was necessary to resect the fourth thoracic sympathetic ganglion on the left before a good result was obtained. In contrast, one of our patients who was subject to anginal attacks from whom the second and third thoracic ganglions were removed bilaterally for Raynaud's disease and scleroderma continued to have attacks of pain in the left arm although the substernal component was completely relieved. Removal of the fourth thoracic ganglion in this patient was not necessary, therefore, to abolish substernal pain. It would appear that the persistent pain in the left arm in this patient is mediated through the first left thoracic ganglion. This case is not included in the reported series because the patient did not have hypertension and the operation was not purposely designed to relieve the angina, the fear being entertained at that date of robbing her of warning anginal pain. Two similar cases are included in the series; in these the left arm pain persisted when the first thoracic ganglion on the left was not resected. However, left arm pain did disappear in three patients whose first thoracic ganglions were left untouched.

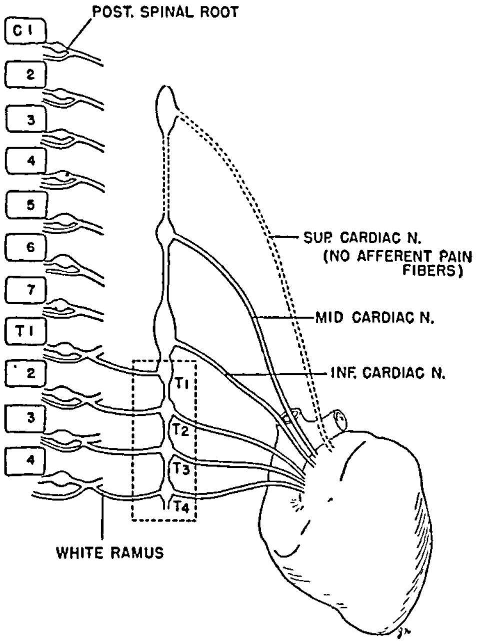


Fig. 1.—The cardiac afferent pain pathway. Note how the anginal pathway is funneled through the first, second, third and fourth thoracic ganglions.

Complete relief of anginal pain was obtained in five patients, four of whom had the first thoracic ganglion on the left resected. In two of these patients not even throat pain occurred after operation. The weight of evidence therefore seems to indicate the importance of including the first thoracic ganglion in order that the patient may obtain complete relief. The recurrence of pain on the right in two patients leads us now to advise bilateral resection to the first thoracic sympathetic ganglion. This decision is consistent with the well recognized anatomic facts as demonstrated by White and Bland[4] and previously in animal experiments by White, Garrey and Atkins.[2]

As we embarked gradually on these procedures, our hesitancy to carry resection immediately up to the stellate ganglion was caused by the desire to avoid ptosis. In some cases it is difficult to avoid resection of part of the stellate ganglion and the production of a Horner's syndrome if fusion of the first thoracic with the stellate ganglion is too close. None of our patients complained who did obtain a ptosis, however, and it has been our observation that in time the ptosis becomes less decided. The fact that the higher the resection the better the results is also borne out by a comparison of results to the height of the resection. This is especially true on the left side.[12] Table 1 makes this evident

---

[8] Isberg, E. M., and Peet, M. M.: Influence of Supradiaphragmatic Splanchnicectomy on Heart in Hypertension, Am. Heart J. **35**: 567-583 (April) 1948.

[9] Grimson, K. S.; Orgain, E. S.; Anderson, B.; Broome, R. A., Jr., and Longino, F. H.: Results of Treatment of Patients with Hypertension by Total Thoracic and Partial to Total Lumbar Sympathectomy, Splanchnicectomy and Celiac Ganglionectomy, Ann. Surg. **129**: 850-871 (June) 1949.

[10] Kinsey, D., and Smithwick, R. H.: Early Experiences with Total Thoracic Sympathectomy in Hypertensive Patients with Coronary Heart Disease and Angina Pectoris, Proc. New England Heart A. pp. 63-64, 1946-47.

[11] Jonnesco, T.: Operative Cure of Angina Pectoris, Bull. Acad. de méd. Paris **84**: 93-102 (Oct. 5) 1920.

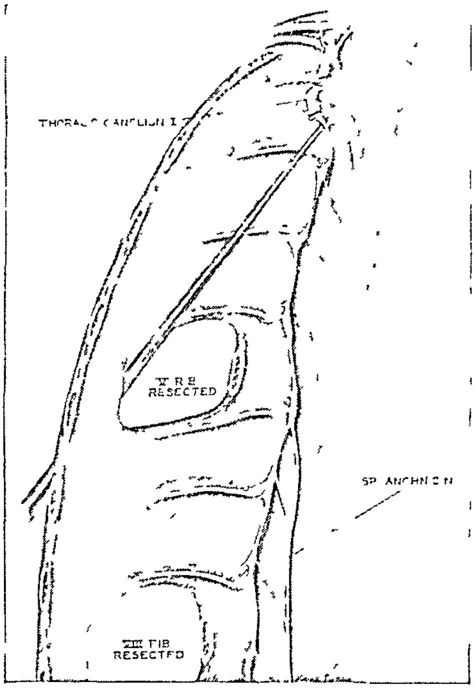


Fig 2.—The upper end of the sympathetic resection

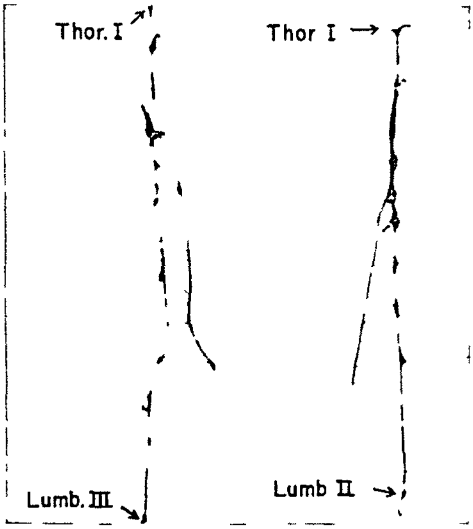


Fig 3.—Specimens removed in sympathectomy from the stellate ganglion to the third lumbar ganglion (hypertension with severe angina).

TECHNIC OF OPERATION

The technic used for the removal of the stellate ganglion and the thoracic sympathetic ganglion chain is identical to the procedure previously described[13] for extensive combined thoracolumbar sympathectomy, except that the incision is extended cephalad approximately 4 cm. The medial portion of the fifth rib is removed as well as the eighth and eleventh ribs instead of the seventh and eleventh ribs as previously described. This allows excellent extrapleural exposure of the upper thoracic sympathetic chain and ganglions as indicated by figure 2. The entire thoracic sympathetic system including the stellate ganglion may be removed in this manner (fig. 3).

GENERAL RESULTS

High thoracolumbar sympathectomy (table 2) was performed in a series of 10 hypertensive patients with severe disabling angina pectoris, among whom only one had had probable coronary infarction (case 8) but all presumably had coronary insufficiency. The follow-up period was from three months to three years. Complete relief except for a residual sensation of constriction in the throat was obtained in five, or one half of the cases. There was partial but satisfactory relief of pain in the remaining five patients. One of the latter group, referred to Dr. Poppen for operation by Drs Joslin and Root, was bedridden with status anginosus. Merely turning in bed produced pain. Although she still suffers mild substernal pain, causing her to stop to rest, she is active, doing all her housework and going on shopping trips (case 5).

Table 1.—*Results in Relation to Height of Resection*

Complete Relief			Partial Relief		
Case	Left	Right	Case	Left	Right
2	T_1	T_3—Throat	1	T_3	T_0—Left side of neck, fingers
4	T_2	T_2	3	T_3	T_1—Left arm, throat (seldom)
8	T_1	T_1—Throat, jaw	5	T_2	T_4—Substernal pain on moderate exertion; complete relief of status anginosus
9	T_2	T_2—Throat	6	T_2	T_1—Hot sensation in arms, throat
10	T_1	T_4	7	T_2	T_4—Left side of chest, throat (mild)

In table 3 is listed the progressive relief of anginal pain in successive reports from the Lahey Clinic on results of splanchnicectomy for hypertension.

The patients in series 4 all had severe disabling angina. Milder angina has so often been relieved by resection to the fourth thoracic level that we have not subjected these patients to resection of the first thoracic ganglion with its additional technical difficulties and danger of ptosis.

In series 1 patients with anginal pain were not selected for surgical treatment. In series 2 and 3 no careful note was made of whether the patient still had partial or complete relief. The pattern of the pain when it did recur was never noted as having been changed, as it invariably is when all or part of the anginal pathway is resected. There was no operative mortality in the 10 patients in series 4. One patient died three years later of a coronary infarction (case 1). One other patient has survived three years, and three have survived two years.

COMMENT

All our patients had fairly severe symptoms of postural hypotension for about six months postoperatively, but only the most severely ill patient, who had status anginosus (case 5), experienced angina on standing up quickly. Resection in this case was limited to the second thoracic ganglion on the left and the fourth thoracic ganglion on the right. It might be expected that decreased coronary flow resulting from rapid severe drop of blood pressure on standing would increase the incidence of angina in the hypertensive patient. The fact that this seldom occurs is an argument in favor of the possibility that abolition of the cardiac sympathetic pathway actually increases coronary flow. The principle of the reflex sympathetic dystrophy type of pain and the theory of the internuncial pool of Lorente de No[14] may account for the success of the operation. That some such mechanism may pertain is further borne out by the improvement of a Dupuytren's contracture in the left hand of one patient (case 9) in whom resection was carried out to the first thoracic ganglion on the left, while the Dupuytren's syndrome on the right hand became worse when resection was only to the level of the third thoracic sympathetic ganglion. Kehl[15] reported six cases of Dupuytren's contracture following coronary disease and infarction. We suggest that good results might be expected in cases of the shoulder-hand syndrome, a rather rare complication of coronary artery disease described by Hilker.[16] Johnson[17] reported that hand changes take place in 21.8 per cent of patients with myocardial infarction, suggesting a reflex sympathetic dystrophy induced by cardiac pain. These observations enhance the rationale of sympathectomy for anginal pain.

---

[12] These operations being splanchnicectomies for hypertension, it is to be understood that the lower end of resection was the second or third lumbar ganglions bilaterally.

[13] Poppen, J. L.: Extensive Combined Thoracolumbar Sympathectomy in Hypertension, Surg., Gynec. & Obst. 84: 1117-1123 (June) 1947.

Table 2.—*Summary of Cases*

Case	Age	Sex	Preoperative Status	Level of Operation	Time of Follow-up	Present Status	Result
1	42	F	Grade 3 hypertension; pain in right chest and arm on exertion	Left: T_3-L_2 Right: T_6-L_2	3 yr.	Experienced immediate relief of pain, but it recurred on the right; died 9/11/49 of coronary occlusion	Partial relief
2	46	F	Grade 2 hypertension; substernal pain on exertion	Left: T_1-L_2 Right: T_3-L_3	3 yr.	No angina	Complete relief, except throat
3	47	F	Grade 2 hypertension; exertional anginal pain	Left: T_3-L_2 Right: T_1-L_2	2 yr., 8 mo.	Occasional pain in throat and left arm on exertion	Partial relief
4	41	M	Grade 3 hypertension; substernal pressure on exertion	Left: T_2-L_2 Right: T_2-L_2	2 yr., 9 mo.	No angina	Complete relief
5	49	F	Diabetes mellitus; grade 3 hypertension; angina decubitus and status anginosus	Left: T_2-L_2 Right: T_4-L_2	2 yr., ...	No longer bedridden but has substernal pain on exertion and on standing quickly; complete relief of status anginosus	Partial relief
6	42	M	Grade 3 hypertension; persistent angina of effort despite previous T_7-L_1 resection	Left: T_2-T_9 Right: T_1-T_7	20 mo.	No precordial pain but an occasional hot sensation in throat and arms	Partial relief
7	49	F	Grade 2 hypertension; substernal smothering, pain on exertion	Left: T_2-L_2 Right: T_4-L_2	15 mo.	No angina for 1 yr. but in last 3 mo. return of some chest pain on exertion and choking sensation in throat	Partial relief
8	54	F	Grade 3 hypertension; substernal pain on exertion	Left: T_1-L_2 Right: T_1-L_2	1 yr., 4 mo.	No angina; bilateral subacute subacromial bursitis developed	Complete relief, except throat and jaw
9	45	M	Grade 2 hypertension; bilateral Dupuytren's contracture; angina of effort	Left: T_1-L_3 Right: T_3-L_2	6 mo.	No pain, only a sense of constriction in throat on exertion; Dupuytren's contracture better on left, worse on right	Complete relief, except throat
10	44	F	Grade 2 hypertension; dull, squeezing, substernal pain on exertion	Left: T_1-L_2 Right: T_4-L_2	3 mo.	No pain	Complete relief

Another disadvantage of the operation besides the ptosis of Horner's syndrome, postural hypotension and severe sweating in the groins is swollen nasal membranes (noted by Grimson and others[9]). This last complaint occurred in two of our patients, but it tends to subside early.

That coronary irrigation may actually be increased in much the same way as in a desympathectomized limb is suggested by the increased capacity of these patients for work, before the residual throat constriction symptom of angina occurs. For example, in case 8 the patient had hypertension grade 3 and probably remote anterolateral myocardial infarction. For the past 18 months she had been incapacitated and unable to do any housework or to walk in cold weather. Sixteen months after resection of the first thoracic to the second lumbar sympathetic ganglions on the left and the third thoracic to the second lumbar ganglions on the right she reported a new sensation of pain in the throat, radiating to both lower jaws. This pain was so unfamiliar to her and so different from her old angina pain that she attributed it to a small, nontoxic, colloid, adenomatous goiter and thought its removal might help. Only on careful questioning did it become apparent that this pain also occurred on effort but only after much greater exertion than that required to cause pain before operation. In fact she now does all her housework and goes shopping in any weather. Her blood pressure was still 230 mm. systolic and 110 mm. diastolic as compared to 250 mm. systolic and 124 mm. diastolic before operation. It was almost one and a half years after operation; she had had no intervening coronary attacks, so the extended exercise tolerance could not be attributed to reduction of cardiac load, prolonged rest after

Table 3.—*Comparison of Relief of Anginal Pain in Four Series of Cases*

	Number of Persons with Angina	Height of Resection	Satisfactory Relief, Percentage
Series 1..................	0	T_{12}-L_2 or L_3	(Angina patients were avoided)
Series 2..................	8	Between T_{12} and T_5-L_2	12.5
Series 3..................	15	T_4	73.0
Series 4..................	10	Various parts of anginal pathway	100.0

---

[14] Lorento de No, R.: Analysis of the Activity of the Chains of Internuncial Neurons, J. Neurophysiol. **1:** 207-244 (May) 1938.

[15] Kehl, K. C.: Dupuytren's Contracture as a Sequel to Coronary Artery Disease and Myocardial Infarction, Ann. Int. Med. **19:** 213-233 (Aug.) 1943.

[16] Hilker, A. W.: The Shoulder-Hand Syndrome: A Complication of Coronary Artery Disease, Ann. Int. Med. **31:** 303-311 (Aug.) 1949.

[17] Johnson, A. C.: Disabling Changes in Hands Resembling Sclerodactylia Following Myocardial Infarction, Ann. Int. Med. **19:** 433-456 (Sept.) 1943.

operation or the relief of effort angina that sometimes comes after a coronary infarction. White and Bland[4] have successfully abolished residual jaw pain by mandibular nerve injection.

Another possible argument in favor of increased coronary flow after desympathectomizing the heart is seen in case 3. This patient's electrocardiographic exercise tolerance test changed from positive to negative. She wrote in her letter "I feel much better, do more work, have adopted a baby and am kept very busy." She still has occasional pain in the throat and left arm on exertion two years and eight months after resection of the third thoracic to the second lumbar ganglions on the left and the first thoracic to the second lumbar ganglions on the right.

The disappearance of the throat constriction together with all pain in two patients is probably the result of extension of exercise tolerance incident to increased coronary flow rather than of resection of any pain pathway mediating a sense of throat constriction.

In case 1, in which the patient died three years after operation, results were the poorest of all; unfortunately the patient had resection only to the sixth thoracic ganglion on the right, although her pain preoperatively was mostly right-sided. Sweating could be demonstrated over the right side of the chest and the right arm after operation, proving that the most important pathway in this case was not touched at all. Our experience with this patient bears out White's[4] contention that cardiac pain is mediated to the right by the right cardiac nerves and to the left by the left cardiac nerves.

Case 6 is of interest because the patient had resection to the seventh thoracic ganglion in 1943 but still had angina. When he underwent operation again for angina and persistent hypertension he obtained gratifying relief from resection to the second thoracic on the left and the first thoracic on the right.

In case 7 the patient is classed as obtaining partial relief although she had complete relief for a year. Her recurrence in the last three months may be due to regeneration of the neural pathways, but she has not yet been subjected to a sweat test to determine this point.

CONCLUSIONS

1. Resection of various parts of the sympathetic anginal pathway (first to the fourth thoracic on the right and left) resulted in satisfactory relief of anginal pain in all 10 patients. Relief was complete in five except for a residual sense of throat constriction in three.

2. Resection of the anginal pathway should include the first to the fourth thoracic ganglions on both sides for best results.

3. There is not always residual throat or jaw pain, but relief from this may result because (*a*) exercise tolerance is improved by lessened strain on the heart from hypertension and (*b*) actual dilation of the coronary bed occurs.

4. The pernicious circle of anginal pain in status anginosus can be broken by sympathectomy, probably on the same basis that reflex sympathetic dystrophy is helped.

5. Horner's syndrome is not a valid contraindication to carrying the resection to the lower stellate ganglion (first thoracic), especially when the resection is bilateral.

HORMONE STUDIES IN PEPTIC ULCER

Pituitary Adrenocorticotropic Hormone (ACTH) and Cortisone

DAVID J. SANDWEISS, M D
HARRY C. SALTZSTEIN, M D.
S. R. SCHEINBERG, M D.
Detroit
and
ARTHUR PARKS, M D.
Fordyce, Ark.

For some time we and our associates[1] have been interested in a possible pituitary-gonadal mechanism in the pathogenesis of peptic ulcer.[1b] Several clinical observations tend to support this thesis: first, peptic ulcer and its complications are less common in women than in men; second, pregnancy usually has a beneficial effect on symptoms of peptic ulcer; third, although peptic ulcer in children is rare, its incidence is equal in both sexes until maturity, when the incidence again becomes higher in the male; fourth, peptic ulcer in women not infrequently has its onset during the climacterium; fifth, the menopause may be expected to aggravate symptoms of ulcer, and sixth, a fairly high percentage of women with proved duodenal ulcer apparently show an endocrine imbalance. It should also be noted that during the reproductive years the anterior pituitary gland is more active in the female than in the male and that it hypertrophies during pregnancy. We postulated the existence of a sex-linked endocrine mechanism, with increased production of pituitary hormones, as the means by which the normal woman is protected against peptic ulcer during her reproductive decades Supportive evidence for this belief was found in dogs

---

From the Research Division of the Harper Hospital.

Read before the Section on Gastro Enterology and Proctology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

This investigation was supported by a grant from the Division of Research Grants and Fellowships of the National Institutes of Health, United States Public Health Service.

1. (*a*) Sandweiss, D. J.; Saltzstein, H C, and Farbman, A A · The Prevention or Healing of Experimental Peptic Dogs with the Anterior Pituitary-like Hormone Report, Am J. Digest Dis. **5:** 24 (March) Hormones to Peptic Ulcer, ibid **6:** 6 (March) 1939. Sandweiss, D J, Sugarman, M. H ; Friedman, M H. F.; Saltzstein, H C, and Farbman A A : The Effect of Urine Extracts on Peptic Ulcer· An Experimental and Clinical Study, ibid **8:** 371 (Oct) 1941. Beaver, D. C, Sandweiss, D J ; Saltzstein, H. C.; Farbman, A. A, and Sanders, A W · The Effects of Urine Extracts on the Prevention and Healing of Experimental Ulcers in Dogs, Am J. Clin Path. **12:** 617 (Dec) 1942. Sandweiss, D J.: Is a Disturbance of Endocrine or Sex Glands Responsible for Duodenal Ulcer? Hebrew M J **2:** 182, 1942; The Immunizing Effect of the Anti-Ulcer Factor in Normal Human Urine (Anthelone) Against the Experimental Gastrojejunal (Peptic) Ulcer in Dogs, Gastroenterology **1:** 965 (Oct) 1943. (*b*) Sandweiss, D. J, and Saltzstein, H C Hormone Preparations in the Treatment of 282 Mann-Williamson Dogs, Surgery **26:** 647 (Oct) 1949 (*c*) Friedman, M. H. F.; Recknagel, R O, Sandweiss, D. J, and Patterson, T. L : Inhibitory Effect of Urine Extracts on Gastric Secretions, Proc Soc Exper. Biol. & Med **41:** 509 (June) 1939. Farbman, A. A ; Sandweiss, D. J, and Saltzstein, H C The Effect of Pregnancy and Antuitrin S on Cincophen Ulcers in Dogs, Am J Digest Dis **6:** 702 (Dec) 1939. Saltzstein, H C.; Farbman, A A, and Sandweiss, D. J.: The Sex Incidence of Peptic Ulcer in Children, Endocrinology **27:** 400 (Sept) 1940 Friedman, M. H. F, and Sandweiss, D J : The Gastric Secretory Depressant in Urine, Am J. Digest Dis **8:** 366 (Oct) 1941. Sandweiss, D. J, and Friedman, M. H F Is the Beneficial Effect of Urine Extracts on Mann-Williamson Ulcers Due to the Gastric Secretory Depressant in Urine? ibid **9:** 166 (May) 1942 Sandweiss, D. J.; Podolsky, H. M.; Saltzstein, *H. C, and* Farbman, A A : Deaths from Perforation and Hemorrhage of Gastroduodenal Ulcer During Pregnancy and Puerperium, Am J. Obst & Gynec **45:** 131 (Jan) 1943 Kaulbersz, J ; Patterson, T. L ; Sandweiss, D. J, and Saltzstein, H. C : The Relation of Endocrine Glands to the Gastric Secretory Depressant in Urine (Urogastrone), Science **102:** 530 (Nov) 1945 Friedman, M H. F, and Sandweiss, D. J : A Method for Bio-Assay *of* Extracts Which Inhibit Gastric Secretions, Am J. Digest Dis **13:** 108 (April) 1946 Kaulbersz, J ; Patterson, T. L ; Sandweiss, *D J,* and Saltzstein, H C : Alterations in Urogastrone Excretion Produced by Extirpation of Various Endocrine Glands, Am. J. Physiol **150:** 373 (Sept) 1947; The Effect of Urine Extracts from Oöphorectomized Dogs on Gastric Secretion, Rev. Gastroenterol **16:** 254 (March) 1949; The Effect of Urine Extract from Thyroidectomized Dogs on the Gastric Secretion, ibid **16:** 257 (March) 1949. Sandweiss, D J.; Kaulbersz, J, Patterson, T. L, and *Saltzstein,* H. *C* · *Concerning* Relation of the Pituitary Gland to Enterogastrone and Urogastrone, Federation *Proc* **8:** 138 (March) 1949 Sandweiss, D. J.: The Present Day Treatment of Duodenal Ulcer, Pennsylvania M J **52:** 1543 (Nov) 1949

with Mann-Williamson ulcers.[1a,b] The anterior pituitary hormones (luteinizing and follicle stimulating), the corpus luteum hormone (progesterone) and urine extracts from pregnant and nonpregnant women (uroanthelone) appeared to be of significant value in preventing or healing these ulcers, but estrogens were without benefit.

A new approach to this study of sex-endocrine relationships was suggested by Hench's successful use of pituitary adrenocorticotropic hormone (ACTH) and cortisone in rheumatoid arthritis,[2] that is, the added possibility of primary or intermediate activity of the adrenals in the pathogenesis of ulcer. Hench's use of these hormones was predicated on observations that both pregnancy [3] and jaundice [4] have an ameliorating influence on rheumatism. Since pregnancy, as a rule, relieves the symptoms of peptic ulcer as well as those of rheumatoid arthritis, one might assume that the same pituitary-adrenal hormone mechanism would be active in both diseases. Therefore, we have attempted to determine what effect, if any, these hormones might have on experimental Mann-Williamson ulcers in the dog. We also studied the urinary excretion of 17-ketosteroids and 11-oxycorticosteroids in both normal subjects and patients with duodenal ulcer. We wish to report our preliminary data and also our observations on the treatment of four ulcer patients, two with pituitary adrenocorticotropic hormone and two with cortisone.

EFFECT OF HORMONES ON EXPERIMENTAL ULCERS

Experimental ulcers in dogs were produced by the Mann-Williamson operative technic,[5] sometimes referred to as surgical duodenal drainage.[6] This operative technic was chosen because the jejunal ulcer which ensues closely simulates, macroscopically and microscopically, the postoperative jejunal ulcer in man.

The present series involves 23 Mann-Williamson dogs: 11 control animals; 6 treated with cortisone and 6 treated with pituitary adrenocorticotropic hormone. The weight of the animals ranged between 20 and 25 pounds (9 and 12 Kg.). Treatment with cortisone was started 13 to 30 days after the operation and continued daily throughout the life of each animal. The dogs received 20 mg. of cortisone acetate subcutaneously or intermuscularly daily in two equally divided doses. The drug was administered as a sterile saline suspension containing 1.5 per cent benzyl alcohol as a preservative. Treatment with pituitary adrenocorticotropic hormone was started eight to 35 days after the Mann-Williamson operation and continued daily through the life of the animals. The hormone was administered subcutaneously or intramuscularly in doses of 10 to 15 mg. a day divided into two equal doses (Armour standard LaTA or its equivalent). Final and detailed results will be reported later, since the study is not yet complete. However, on the basis of our data to the time of writing the following preliminary summary may be made:

1. Shortly after operation, control dogs began to lose weight, showed signs of weakness and appeared chronically ill in most instances We noticed some improvement in the dogs treated with pituitary adrenocorticotropic hormone. As a group the cortisone-treated dogs were in good condition, continued in a state of excellent nutrition and showed their usual vigor and activity.
2. The average postoperative survival time of the cortisone-treated animals was twice that of the control animals and about 40 per cent longer than that of the animals treated with the pituitary hormone. To date, only one of the 11 control animals survived six months after the operation. However, two of the six animals treated with pituitary adrenocorticotropic hormone and four of the six cortisone-treated animals were alive at the end of six months.
3. This beneficial effect of cortisone and to a lesser degree of pituitary adrenocorticotropic hormone on the postoperative survival time of Mann-Williamson dogs is similar to that obtained by using an extract prepared from urine of pregnant mare (uroanthelone, kutrol®) and given orally. Three of seven Mann-Williamson dogs so treated are still alive and in an excellent nutritional state 6, 8 and 10 months after surgical intervention The beneficial effect obtained is therefore not associated with cortisone alone. The effects of these hormones on ulcers and other tissues and organs will be reported in detail elsewhere One striking effect is the pronounced reduction in the postoperative visceral adhesions in the cortisone-treated and adrenocorticotropic hormone-treated Mann-Williamson dogs as compared with those found in the untreated animals.

Comment.—The average survival time of Mann-Williamson dogs treated with cortisone is longer than that of the animals given pituitary adrenocorticotropic hormone and considerably longer than that of the untreated animals. The treated animals, as a group, were in an exceptionally good nutritional state and in good vigor. However, similar results have been obtained with an extract from pregnant mares' urine (hormonal products).[7]

URINARY EXCRETION OF 11 OXYCORTICOSTEROIDS AND 17-KETOSTEROIDS

Material and Method.—Because it is generally accepted that urinary excretion of 11-oxycorticosteroids [8] and 17-ketosteroids [9] is a measure of adrenal activity, we compared the urinary excretion of these products in 31 normal subjects (16 males and 15 females) with the excretion in 43 patients with duodenal ulcers (31 males and 12 females). Ages in both groups of subjects ranged between 20 and 66 years. In 12 of the ulcer patients steroid excretion was studied during an ulcer attack and again months later, when they were in a period of remission.

Both ambulatory and hospitalized patients were included. All had the typical ulcer syndrome and roentgenologic evidence of ulcer. Both groups (the normal subjects were all ambulatory) were carefully briefed in the method of collecting 24-hour urine excretions. Chloroform was added to the bottles as a preservative before collection was started. The complete 24-hour urine output for each subject was delivered to the laboratory on the morning the collection was completed. In every case the initial extraction was begun within eight hours after the urine was received in the laboratory.

---

[2] Hench, P. S ; Kendall, E C ; Slocumb, C. H , and Polley, H. F : The Effect of a Hormone of the Adrenal Cortex (17-Hydroxy 11-dehydrocorticosterone: Compound E) and of Pituitary Adrenocorticotropic Hormone on Rheumatoid Arthritis: Preliminary Report, Proc. Staff Meet , Mayo Clin **24:** 181 (April 13) 1949; Effects of Cortisone Acetate and Pituitary ACTH on Rheumatoid Arthritis, Rheumatic Fever and Certain Other Conditions: A Study in Clinical Physiology, Arch Int Med **85:** 545 (April) 1950.

[3] Hench, P. S.: The Ameliorating Effect of Pregnancy on Chronic Atrophic (Infectious Rheumatoid) Arthritis, Fibrositis and Intermittent Hydrarthrosis, Proc Staff Meet , Mayo Clin **13:** 161 (March 16) 1938

[4] Hench, P. S · Analgesia Accompanying Hepatitis and Jaundice in Cases of Chronic Arthritis, Fibrositis, and Sciatic Pain, Proc Staff Meet , Mayo Clin **8:** 430 (July 12) 1933

[5] The operative procedure is as follows: Transection of the pylorus, closure of the duodenal stump, transection of the jejunum 4 inches (10 cm) beyond the ligament of Treitz, end to side gastrojejunostomy and side to side jejunoileostomy, anastomosing the proximal curved portion of the jejunum to the ileum 10 inches (25 cm) above the ileocecal valve This short circuits the bile, pancreatic juice and duodenal secretion into the terminal ileum The acid gastric juice and gastric contents enter the jejunum

[6] Mann, F. C , and Williamson, C. S.: The Experimental Production of Peptic Ulcer, Ann Surg **77:** 409 (April) 1923

[7] The term anthelone is applied in an all inclusive sense to extracts of urine and intestinal mucosa having antiulcer properties Anthelone agents have been prepared from a number of sources including urine, human or other, (uroanthelone) and hog intestine (enteroanthelone, previously referred to as enterogastrone concentrates).

[8] The 11 oxycorticosteroids are organic compounds which contain the fundamental nuclear framework of the perhydrocyclopentenophenanthrene ring system, in common with the sterols, bile acids and sex hormones They are further differentiated from the other adrenal corticosteroids by the presence of an oxy or hydroxy radical on C 11 These substances have a specific effect on protein and carbohydrate metabolism, in contrast to the corticosteroids, which lack an atom of oxygen on C 11 and which have a specific effect on water and electrolyte metabolism

[9] The 17-ketosteroids also contain the fundamental nuclear skeleton of the same perhydrocyclopentenophenanthrene ring system These compounds receive their name because of the presence of a ketone group on C 17. They are produced by both the adrenal cortex and the testes Many exhibit androgenic activity, but others are biologically inert

The 11-oxycorticosteroids were determined by the chemical method of Daughaday, Jaffe and Williams,[10] which depends on measurement of the formaldehyde liberated by the hormone on oxidation with periodic acid. An aliquot of an unhydrolyzed 24-hour urine specimen is acidified and extracted with chloroform at room temperature. Partition of the extract between benzene and water adds to the specificity, and a distillation step separates the formaldehyde from interfering chromogens before color development with chromotropic acid.

The 17-ketosteroids were determined by the rapid chemical method of Robbie and Gibson,[11] which consists essentially of acid hydrolysis of an aliquot of a 24-hour urine specimen, followed by carbon tetrachloride extraction. The hormone content is then assayed by the alkaline *m*-dinitrobenzene technic.

Table 1.—*11-Oxycorticosteroids: Average 24-Hour Urinary Excretion (Mg./24 Hr.)*

Normal Subjects (31)			Patients with Duodenal Ulcer (43)		
Below 0.74 Mg.	0.74 to 1.00 Mg.	1.00 Mg. or Higher	Below 0.74 Mg.	0.74 to 1.00 Mg.	1.00 Mg. or Higher
None	0.74	1.00	0.40	0.75	1.00
....	0.84	1.01	0.42	0.79	1.06
....	0.85	1.02	0.44	0.80	1.20
....	0.88	1.02	0.49	0.81	1.23
....	0.97	1.04	0.52	0.85	1.28
....	0.99	1.05	0.52	0.86	1.29
....	....	1.06	0.53	0.88	1.30
....	....	1.10	0.54	0.89	1.32
....	....	1.14	0.55	0.89	1.35
....	....	1.14	0.60	0.90	1.50
....	....	1.20	0.61	0.92	1.58
....	....	1.35	0.61	0.93	1.77
....	....	1.43	0.64	0.95	1.86
....	....	1.46	0.67	0.96	....
....	....	1.50	0.72	0.98	....
....	....	1.50	....	....	....
....	....	1.52	....	....	....
....	....	1.60	....	....	....
....	....	1.65	....	....	....
....	....	1.69	....	....	....
....	....	1.76	....	....	....
....	....	1.82	....	....	....
....	....	2.25	....	....	....
....	....	2.45	....	....	....
....	....	2.72	....	....	....
None	19%	81%	35%	35%	30%
19% of the Patients			70% of the Patients		
Average 1.35 mg./24 hr.			Average 0.91 mg./24 hr.		

Results.—Table 1 presents the 24-hour urinary excretion of 11-oxycorticosteroids in each of the 31 normal healthy adult subjects and in each of the 43 patients with active duodenal ulcer. Table 2 shows the average excretion of both the 11-oxycorticosteroids and the 17-ketosteroids for the two groups of subjects.

Normal Subjects: 1. Average 11-oxycorticosteroid excretion for the normal subjects is 1.35 mg. (males 1.25 mg. and females 1.46 mg.).

2. Average 17-ketosteroid excretion for the normal subject is 9.6 mg. per 24-hour urine sample (males 10.9 mg. and females 8.3 mg.). The higher excretion in the males is expected because of the role played by the testis in the production of a portion of these compounds.

Ulcer Patients: 1. The average 11-oxycorticosteroid excretion for the ulcer patients is 0.91 mg. (males 0.88 mg. and females 1.00 mg.). Seventy per cent of patients had values below 1.0 mg., but only 19 per cent of normal subjects had such low determinations. Thirty-five per cent of the ulcer patients excreted less than the lowest average normal figure (0.74 mg.). These lower values are statistically significant (table 3).

Table 2.—*Average 24-Hour Urinary Excretion of 11-Oxycorticosteroids and 17-Ketosteroids*

Group	11-Oxycorticosteroids Mg./24 Hr.		17-Ketosteroids Mg./24 Hr.	
1 Normal subjects (31)				
Male 15	1.25	1.35	10.9	9.6
Female 16	1.46		8.3	
2 Patients with active duodenal ulcer (43)				
Male 31	0.88	0.91	9.8	8.5
Female 12*	1.00		5.3	
3 (*a*) 12 patients in group 2 during active symptoms	....	0.90	...	8.2
(*b*) The same 12 patients while symptom free	....	1.14	...	6.6

* These are the same patients (*a*) during periods of ulcer distress and (*b*) during periods of remission. They are also included in group 2.

2. The average 17-ketosteroid value for the ulcer patients is 8.5 mg. in a 24-hour urine output (males 9.8 mg. and females 5.3 mg.).

3. Of interest is the average steroid excretion of 12 ulcer patients during periods of remission as compared with periods of ulcer distress. It will be noted from table 2 that during active ulcer symptoms patients excreted an average of 0.9 mg. of 11-oxycorticosteroids in 24 hours. When these 12 patients were symptom free, months after the ulcer attack, they excreted on the average 1.14 mg. Variations in 11-oxycorticosteroid excretion are also statistically significant (table 3).

The average excretion of 17-ketosteroid was slightly higher during periods of ulcer distress (8.2 mg. during symptoms and 6.6 mg. during symptom-free intervals).

Comments.—In patients with active duodenal ulcer 11-oxycorticosteroid excretion is less than in normal healthy subjects. The difference is statistically significant. These data are presented to stimulate additional comparative studies not only for larger series of ulcer patients but also for patients with other chronic gastrointestinal diseases. The latter group of patients might also show similar low levels. We are studying this possibility now.

Table 3.—*Statistical Analysis of 11-Oxycorticosteroid Values for Significance*

Class	No.	Mean	S.D. Mean	Diff.	S.D. Diff.	t	P*
1 Normal male	15	1.2175	±0.0848	0.3653	±0.1104	3.31	<0.01
Ulcer male	31	0.8522	±0.0706	......	....	....	....
2 Normal female	16	1.4846	±0.1487	0.4821	±0.1780	2.71	0.01
Ulcer female	12	1.0025	±0.0978				
3 12 ulcer patients in and out of ulcer attacks	In 12 patients observed in and out of attacks, the mean difference was 0.2375 lower in attack than out. The standard deviation of this mean was 0.111, giving a t value of 2.14 and a P of <0.05.					2.14	<0.05

* Interpretation of P values: If P is 0.05 or <0.05, the result is statistically significant; if 0.01 or <0.01, statistically highly significant, and if >0.05, not statistically significant.

TREATMENT OF PATIENTS WITH HORMONES

Thus far we have treated two patients with cortisone (cases 1 and 2) and two with pituitary adrenocorticotropic hormone (cases 3 and 4).

Case 1.—*History and Previous Course.*—Miss V. E., aged 33, had an ulcer history dating back to 1940. During the six years prior to the present observation (1943-1949) she had frequent relapses, remaining symptom free for only two to three months at a time. During the past two years (1947-1949) distress recurred almost daily. For the last year it was more acute, so that the patient worked below her normal efficiency. During this period there was a weight loss of about 15 pounds (6.8 Kg.). Relief followed food and antacids for only one-half to one hour. Nocturnal distress was constant during the past six months, but there was no back pain. There was frequent nausea but no vomiting.

---

[10] Daughaday, W. H.; Jaffe, H., and Williams, R. H.: Chemical Assay for "Cortin": Determination of Formaldehyde Liberated on Oxidation with Periodic Acid, J. Clin. Endocrinol. 8: 166 (Feb.) 1948.

[11] Robbie, W. A., and Gibson, R. B.: Rapid Clinical Determination of Urinary 17-Ketosteroids, J. Clin. Endocrinol. 3: 200 (April) 1943.

When we saw the patient in June 1949, she was started on conservative ambulatory ulcer management consisting of the usual bland foods, frequent feedings, antacids and antispasmodics. With more rest and reassurance she soon became symptom free and continued in remission (except for occasional mild distress, either during the day or night) for a period of approximately five months, when she had another relapse. More rigid ambulatory management failed, and hospitalization followed for a period of two weeks, with the patient on an hourly feeding schedule of milk and cream (which was gradually increased), frequent antacids, antispasmodics, aspiration, and stomach lavage at bedtime. The patient responded to therapy, but within six weeks after discharge she again had a relapse. On her return to the hospital (February 1950) she improved again, but the ulcer symptoms did not disappear completely.

Clinical and Laboratory Data.—Physical examination was essentially noncontributory except for moderate tenderness in the epigastrium and the right upper abdominal quadrant. Repeated cholecystography revealed a normally functioning gallbladder. The gastrointestinal roentgenologic study showed "a spasm of the duodenal bulb associated with a pocket of barium presenting the usual characteristics of an ulcer crater."

Results of all laboratory procedures were within normal limits. These included the following: complete blood counts, determination of nonprotein nitrogen, total proteins, albumin and globulin ratio, blood uric acid, cholesterol and cholesterol esters, alkaline phosphatase, sodium, potassium, sedimentation rate and eosinophil count (direct method). The urine examination, in addition to routine studies, included uric acid, creatinine and creatine determinations. A five hour glucose tolerance test was also within normal limits. The basal metabolic rate was −1 per cent. The electroencephalogram was also normal, as was the electrocardiogram. The urine 11-oxycorticosteroid level prior to cortisone administration was 0.9 mg. per 24-hour excretion on the first occasion and 1.68 on the second. The 17-ketosteroids were 10.1 mg. per 24-hour excretion on the first examination and 8.6 on the second. Gastric contents obtained by continuous suction during a seven hour nocturnal secretion study prior to cortisone therapy consisted of 497 cc. with free hydrochloric acid output of 386 mg.

Treatment and Course.—The patient received cortisone for 11 consecutive days. During the first two days the dosage was 100 mg. twice daily and from then on 100 mg. daily. A total of 1,300 mg. of cortisone was administered. The patient's response was remarkable during cortisone therapy. Not only did her ulcer symptoms completely disappear but she had a sense of well-being, stating, "I feel better than at any time during the last ten years." Appetite and weight increased. Prior to cortisone therapy she had considerable dysmenorrhea, but this condition has disappeared completely (nine months follow-up).

All examinations enumerated above were repeated on the morning of the sixth day of cortisone therapy and on the following morning after cortisone was discontinued. Significant changes were noted as follows:

1. Urine 11-oxycorticosteroids became moderately elevated during cortisone administration and fell to within normal limits shortly after the drug was discontinued. The highest value was 2.6 mg. per 24-hour excretion (on the sixth day of treatment). The 17-ketosteroids showed no significant change.

2. The seven-hour nocturnal gastric secretion (after cortisone was discontinued) was 486 cc. with 726 mg. of free hydrochloric acid (compared with 497 cc. of secretion and 386 mg. of free acid prior to treatment).

3. The roentgenologic study (on the third day after discontinuance of cortisone therapy) revealed persistence of a small ulcer crater in the central portion of the duodenal bulb in the same site as that demonstrated in previous examinations. It was smaller than it had been previously. There was no associated pylorospasm and little tenderness on pressure.

Comment.—Shortly after injections of cortisone were given, a symptom-free interval began in a patient who had previously been totally intractable to conservative ulcer management. One cannot be certain that all the improvement was due to cortisone, but the general well-being of the patient might certainly be credited to this hormone. Nine months after her discharge the patient is entirely symptom-free and is attending to her usual duties with normal efficiency. She had not been able to live with this degree of comfort for at least a year and a half before the cortisone treatment.

Case 2.—*History and Previous Course.*—Mr. M. P., aged 52, had an ulcer history dating back to 1930. After hospitalization for five days in 1930 the patient was symptom free for six years. He failed to respond to ambulatory management during his second attack (in 1936), but with hospitalization he again became symptom free and remained well for one year. He had a mild hemorrhage in 1937 and again in 1946. Since 1946 he has had relapses annually every spring and fall.

When this patient was seen Jan. 17, 1950 he had had epigastric distress and continuous day and night pain for a period of three weeks, unresponsive to self medication consisting of hourly feedings and nonabsorbable antacids. He was hospitalized Jan. 21, 1950 and given small hourly feedings with antacids and antispasmodics, and gastric lavage at midnight. He failed to improve during a seven day stay and left the hospital against advice. Because of continuous distress he was readmitted Feb. 19, 1950. Food and antacids produced relief for only 15 to 30 minutes at a time. He experienced frequent nocturnal distress but had no back pain. There was no nausea or vomiting. The stools (normal color) gave a positive reaction to the benzidine test for occult blood.

Clinical and Laboratory Data.—Physical examination, routine laboratory studies and cholecystography were essentially noncontributory. Roentgenologic study of the upper part of the alimentary tract showed "a marked deformity with contracture of the duodenal bulb incident to scarring from an old duodenal ulcer. The marked deformity of the bulb was about the same as it had been when the patient was examined in 1946. Transit of the meal was normal for a three hour period, and the stomach emptied in this time. Palpation over the duodenal bulb elicited no pain. There was, however, some spasm of the bulb."

When the patient again failed to respond to hospital management he was advised to have a subtotal resection. The diagnosis was a posterior wall duodenal ulcer which had penetrated (or perforated) the pancreas. However, we decided to attempt cortisone therapy before resorting to surgical intervention.

The blood studies, urine studies and other examinations enumerated in the report on case 1 were again within normal limits on this patient. Gastric contents obtained by continuous suction during a seven-hour nocturnal secretion study amounted to 476 cc. with a free hydrochloric acid output of 908 mg. Test for 11-oxycorticosteroids showed 1.06 mg. per 24-hour urine volume during the first precortisone study and 1.1 mg. for the second; tests for 17-ketosteroids showed 7.3 mg. per 24-hour urine output during the first study and 7.6 for the second.

Treatment and Course.—As in case 1, this patient received cortisone for 11 consecutive days: 100 mg. twice daily for the first two days and once daily for nine days, a total of 1,300 mg. The patient failed to respond to treatment. He continued to have distress not unlike that which he experienced before he had received cortisone.

Significant changes were apparent in laboratory examinations made on the sixth day of cortisone therapy and on the morning after cortisone was discontinued. (All other determinations were within normal limits):

1. Urinary 11-oxycorticosteroids became moderately elevated during therapy and fell to normal limits shortly after cortisone was discontinued. The highest values were 3.5 mg. on the fourth day and 3.4 mg. on the seventh day. Values for 17-ketosteroids were also moderately elevated, reaching a peak of 12.4 mg. during the sixth day of therapy and remaining between 10 and 11.9 mg. throughout the remaining period of treatment, with a fall to precortisone levels on the second day after treatment was discontinued.

2. The eosinophil count dropped below 50 per cent of the precortisone level on the fifth day and remained below the 50 per cent level throughout the period of treatment.

3. After cortisone was discontinued the seven-hour nocturnal gastric secretion was 683 cc., with 1,995 mg. of free hydrochloric acid, compared with 476 cc. (with 908 mg.) in the precortisone period.

4. The serum alkaline phosphatase was moderately elevated.

The patient was subjected to subtotal resection three days after cortisone was discontinued (March 8, 1950). The surgeon reported that: "The first portion of the duodenum was decidedly deformed and so densely adherent to the head of the pancreas that it could not easily be dissected free. With a finger inside the duodenum, the examiner found a deep posterior ulcer about ¾ inch (2 cm.) distal to the pyloric ring, at which point there was also a high degree of obstruction. The ulcer had penetrated into the head of the pancreas, which formed the base of the ulcer. The liver, gallbladder, spleen and pancreas were grossly normal." Subtotal gastric resection was done. The patient made an uneventful recovery.

Comment.—This patient failed to respond to cortisone therapy; symptoms were neither aggravated nor improved. At surgical intervention, a long-standing, chronic posterior wall duodenal ulcer was found, which had penetrated deeply into the pancreas.

CASE 3.—*History and Previous Course.*—Mr. W. P., aged 36, presented an ulcer history since 1937, with frequent relapses and short symptom-free intervals. He had had three episodes of melena and one of hematemesis. During the eight months prior to observation he had daily experienced epigastric pain which was only moderately relieved with food and antacids. Distress occurred every two hours during the night. There was no back pain and no nausea or vomiting. He had refused and never followed a routine ulcer regimen.

When we saw him Jan. 4, 1949 physical examination and routine laboratory tests revealed essentially normal conditions. Cholecystography showed a normally functioning gallbladder without any evidence of calculi. The roentgenologic study of the gastrointestinal tract demonstrated "a small barium-filled ulcer niche at the base of the bulb on the lesser curvature side, with a persistent deformity of the duodenal cap."

The patient refused to follow a restricted diet. Antacids, antispasmodics and discussion therapy failed to initiate a symptom-free interval. He refused hospitalization. After a year of procrastination, and after a period of three months of practically continuous distress day and night, he entered the hospital April 12, 1950, when our usual ulcer regimen was instituted: bed rest, hourly feedings of milk and cream, frequent antacids and antispasmodics, sedatives, vitamins, gastric aspiration and lavage at bedtime, and reassurance.

A repeat roentgenologic examination at this time showed "transient pylorospasm. No ulcer crater could be seen in the duodenal bulb when barium did fill this structure. Some mild scarring was well demonstrated on the roentgenograms. Three-hour study showed no disturbance in the gastric emptying or in the small bowel motility."

Treatment Regimen.—After seven days of hospital management the distress of the patient was less pronounced but was still present. It was our impression that the patient had a posterior wall duodenal ulcer which had penetrated (or perforated) the pancreas. A subtotal gastric resection was advised, but pituitary adrenocorticotropic therapy was instituted before the decision to resort to surgery. The drug was administered intramuscularly in a dosage of 100 mg. daily (33.3 mg. every eight hours). It was our intention to treat the patient daily for 12 consecutive days, but because his distress became more acute (even more acute than that experienced prior to his hospital admission) the regimen was discontinued after nine days.

The following examinations were made on the urine daily for five days prior to hormone therapy, daily during the nine days of treatment and daily for five days after the drug was discontinued: volume of 24-hour urine, 11-oxycorticosteroids, 17-ketosteroids, sodium, potassium, nitrogen, calcium, phosphorus, chlorides, uric acid, creatinine and creatine.

The following examinations were made on the blood twice before hormone treatment was instituted, on the morning of the sixth day of treatment and on the first and fourth mornings after treatment was discontinued: total proteins with albumin and globulin ratio, uric acid, alkaline and acid phosphatase, sodium, potassium, calcium, sodium chloride, phosphorus, cholesterol and cholesterol esters, fasting blood sugar and glutathione.

An eosinophil count was made daily throughout the period of study, as was also a routine blood count. In addition, the following tests were done once before and twice after hormone treatment: a five-hour glucose tolerance test; an electrocardiogram, an electroencephalogram and a basal metabolic rate determination. A seven-hour nocturnal gastric secretion study was done only once, before hormone therapy, the patient refusing the posthormone study.

Clinical Course.—During the first four days of pituitary adrenocorticotropic therapy, the symptoms were not unlike those experienced by the patient during the three days immediately preceding treatment, i. e., mild ulcer distress two or three times daily (about one hour after intake of food) and once during the night. However, on the fourth day of hormone therapy, in addition to the epigastric distress the patient had pain in the upper right abdominal quadrant. The epigastric pain became more acute, recurred much more frequently, lasted much longer and was not relieved by food and antacids, as it had been before treatment with the hormone was instituted. In addition the patient became "tired, very restless and sleepy," with a feeling of "exhaustion."

At first, the physical findings were not appreciably changed except for tenderness in the epigastrium and right upper quadrant. However, on the fifth day there was definite resistance and muscle spasm to the right of the midepigastrium. There was no nausea or vomiting. Hourly feedings of milk and cream with frequent administration of an aluminum hydroxide preparation were reinstituted, but symptoms continued unabated. At times, because of acute epigastric pain, morphine and atropine (in the usual dosage) had to be administered.

On the seventh day of therapy, freckling pigmentation was noted on the left side of the face and the right side of the neck. On the morning of the ninth day in spite of increasing "exhaustion" of the patient, the systolic blood pressure, which previously had ranged between 120 and 130 mm., increased to 150 mm. and the diastolic, previously between 70 and 80 mm., increased to 110 mm. The epigastric and right upper quadrant distress increased in severity. There developed an area of severe muscle spasm and exquisite tenderness to the right of the umbilicus. The symptoms and physical findings were those of impending perforation and localized peritonitis. The hormone was then discontinued (at the end of the ninth day of treatment).

Twenty-four hours after the discontinuation of hormone therapy the patient began to improve. The right upper quadrant distress disappeared, as did the tenderness and muscle spasm. The epigastric distress also subsided to the pretreatment level, with resultant relief of the patient's symptoms for short periods on feedings and antacids. The patient generally became more relaxed and began to regain his strength and sense of well-being. The blood pressure returned to normal levels, and the freckling pigmentation of the skin disappeared two weeks later.

Because ulcer distress continued a subtotal gastric resection was performed on the sixth day after pituitary adrenocorticotropic therapy was discontinued. "The duodenum was chronically thickened with some adhesions, the area of greatest thickening being about ½ inch (1.27 cm.) distal to the pyloric ring and close to the superior margin. When the stump of the duodenum was held open an ulcer almost 1 cm. in diameter was demonstrated on the posterosuperior wall attached to the top of the pancreas. Gastric resection was performed."

There was a decided response to administration of the hormone, as indicated by the following laboratory data:

1. The urinary excretion of 11-oxycorticosteroids and 17-ketosteroids increased appreciably throughout the period of hormone administration, the former reaching a peak of 8.7 mg. and the latter 55.8 mg. during the 24 hours of the sixth day.

2. The eosinophil count dropped to below the 50 per cent level 24 hours after therapy was instituted. Throughout the remaining eight days of therapy the eosinophil count ranged from zero to 14 (the latter only on one occasion).

3. The urine uric acid—creatinine ratio increased moderately.

4. Before therapy the serum albumin determination was 3.93 Gm. and the globulin 2.13 Gm. per 100 cc. (a ratio of 1.8 to 1). On the morning after the hormone was discontinued the serum albumin was 3.45 Gm. and the globulin 3.07 Gm. (a ratio of 1.12 to 1). On the morning of the fourth day after therapy was discontinued there was a definite reversal of the albumin-globulin ratio (albumin 2.6 Gm. and globulin 4.17 Gm., a ratio of 0.64 to 1). Fourteen days after treatment the serum albumin level was 3.94 Gm. and the globulin 3.07 Gm., a 1.3 to 1 ratio.

5. Changes noted in the blood and urine electrolytes will be reported elsewhere in detail. In general, it can be stated that the blood electrolyte values changed as would be expected.

Comment.—Symptomatically, this patient not only failed to respond to pituitary adrenocorticotropic hormone (100 mg. daily) but his ulcer was definitely aggravated during treatment. In addition, he had freckling pigmentation of the face and neck and a feeling of being "tired, restless, sleepy and exhausted." These symptoms completely disappeared 24 hours after hormone therapy was discontinued. The acute pain in the epigastrium also subsided, but moderate ulcer distress continued. The freckling pigmentation of the face and skin disappeared about two weeks after the hormone was discontinued.

As with our second patient who received cortisone, pituitary adrenocorticotropic therapy failed in the presence of a posterior wall duodenal ulcer which had previously penetrated (or perforated) the pancreas. Medical therapy had failed in both patients, and subtotal gastric resection was performed.

Case 4.—*History and Previous Course.*—Mr. L. B., aged 30, had an ulcer history dating from 1945. From 1945 to 1948, although he was receiving ambulatory ulcer management (frequent feedings and antacids) his symptom-free intervals were never longer than two to three months. Food and antacids gave him temporary relief. In November 1948 he was hospitalized at another institution and for a period of one week was given hourly feedings of milk and cream and an aluminum hydroxide preparation. There was a great deal of difficulty at first in obtaining symptomatic relief. The physicians in charge resorted to feedings of milk and cream and amphojel® every hour at night for several nights before the patient finally became free of distress. It was the opinion of the gastroenterologist that "medical management would not accomplish much for him either now or in the future," and gastric resection and vagotomy were advised.

Immediately after discharge of the patient from the hospital his distress recurred, and he continued to have symptoms day and night for four consecutive months. Four months after he left the hospital his distress became less acute but still persisted.

When we saw this patient June 29, 1949 he had acute pain in the epigastrium radiating to the left upper abdominal quadrant, left lower axilla and upper midback. The pain became severer about one hour after feedings and also at about 6:00 a. m. The patient was awakened by pain every one to two hours during the night, and food gave him relief for about one hour. There was no nauesa or vomiting.

Clinical and Laboratory Data.—Physical examination revealed essentially normal conditions except for tenderness in the epigastrium. Results of the usual gastrointestinal laboratory examinations were within normal limits. Roentgenologic study of the gastrointestinal tract showed "a prolonged and pronounced pylorospasm and spasm of the bulb. There was some tenderness and considerable deformity of the duodenal bulb. There was no definite crater. The five-hour study showed the stomach empty, with normal progress of the meal to the lower ileum." Hospitalization was refused. On an ulcer regimen with bed rest at home the patient became moderately improved but was not free from distress.

On May 1, 1950 acute pain developed in the epigastrium. Management at home failed to relieve the symptoms of the patient, who was hospitalized May 23, 1950. After five days the acute distress subsided somewhat. Cholecystography was normal. A repeat roentgenologic study of the gastrointestinal tract showed "thick and coarse mucosal folds chiefly in the prepyloric section. The duodenal bulb was found to be decidedly deformed, and there was extensive scarring from a chronic duodenal ulcer. There was no crater. Four hour gastric examination showed only a small residue of barium in the stomach. Most of the meal was in the ileum, and the motility was essentially normal."

It was our impression that the patient had a posterior wall duodenal ulcer which had penetrated (or perforated) the pancreas. A subtotal gastric resection was advised, but first we initiated hormone therapy. The laboratory examinations enumerated in case 3 were also done in this case.

Treatment and Course.—Because the symptoms in case 3 were aggravated during treatment, in case 4 we started treatment of the patient cautiously with smaller, more frequent doses 15 mg. of pituitary adrenocorticotropic hormone every six hours daily for the first four consecutive days (60 mg. a day); 20 mg. every six hours daily for the next four days (80 mg. a day); 25 mg. every six hours daily during the next two days (100 mg. a day), and 33.3 mg. every eight hours (three times daily) during the last six days of therapy (100 mg. a day)—a total of 1,360 mg. during 16 consecutive days.

On the fifth day of hormone therapy the patient's condition began to improve. He discontinued antacid therapy and did not require feedings between meals, although he was asked to continue with them. His appetite and general well-being also improved. He volunteered the information that "this is the best I have felt for months." He was definitely improved, although he had a gnawing sensation after being without food for three or four hours. On the twelfth day even this gnawing sensation disappeared. He became completely symptom free. However, several days after discharge from the hospital his ulcer distress recurred.

In this patient the eosinophil count during therapy failed to show the consistent drop noted in the preceding patient. The count fluctuated from day to day and at times even reached the pretreatment levels. It should be noted, however, that during the first eight days of therapy the hormone was administered in only 15 to 20 mg. doses. (A 50 per cent drop in eosinophils is expected four to eight hours after administration of a 25 mg. dose.) When the drug was administered in 25 and 33.3 mg. doses the eosinophil count dropped somewhat, but it did not fall below 50 per cent of the pretreatment level as was the case with the first patient treated with pituitary adrenocorticotropic hormone. However, four hours after the patient received a 33.3 mg. injection (Thorn test) the eosinophils dropped to below 50 per cent of the pretreatment count (from 143 to 31 eosinophils).

The urinary 11-oxycorticosteroids and 17-ketosteroids rose moderately but definitely, indicating a response of the adrenals to hormonal stimulation. Blood uric acid and acid phosphatase levels dropped moderately, but the blood electrolytes failed to show the degree of changes noted in case 3. These will be reported later in detail. Towards the end of hormone therapy the serum albumin-globulin also tended to assume a 1 : 1 ratio, as it had in case 3. After treatment with pituitary adrenocorticotropic hormone was discontinued the albumin-globulin ratio returned to normal.

The blood pressure remained at the pretreatment level. No side effects were noted except for a puffiness of the face during the last several days of hormone administration. The face became fuller, taking on the so-called buffalo-type obesity described by Cushing.

Comment.—In our opinion this patient has a posterior wall duodenal ulcer which had previously penetrated (or perforated) the pancreas. Pituitary adrenocorticotropic hormone was given initially in smaller doses (15 mg. every six hours, i. e., 60 mg. a day) and was well tolerated when the dosage was gradually increased to 100 mg. a day. When larger dosages were reached the patient became completely symptom free. However, several days after discharge from the hospital ulcer distress recurred.

SUMMARY

1. Mann-Williamson dogs treated with cortisone lived (on the average) at least twice as long as the untreated control animals. The animals treated with pituitary adrenocorticotropic hormone (ACTH) also lived longer than the untreated animals but not as long as the cortisone-treated animals. However, the beneficial effect of cortisone, and to a lesser degree of pitu-

itary adrenocorticotropic hormone, is not specific. Similar results were obtained in another concurrent series of Mann-Williamson dogs treated orally with an extract prepared from urine of pregnant mares (uroanthelone, kutrol®).

2. Patients with duodenal ulcer, studied to date, have shown a trend toward lower urinary excretion of 11-oxycorticosteroids during periods of ulcer distress. This was statistically significant when compared to the excretion of normal subjects and of the same ulcer patients during symptom-free periods. These preliminary findings are presented to stimulate additional comparative studies in larger series of ulcer patients. Similar studies are now in progress to determine whether patients with other chronic gastrointestinal diseases (gastric ulcer, ulcerative colitis or regional ileitis) show similar changes.

3. Four patients with long-standing chronic duodenal ulcers, intractable to the usual hospital management, were treated with either cortisone or pituitary adrenocorticotropic hormone:

(*a*) One of the two patients treated with 100 mg. of cortisone daily failed to respond to treatment. At surgical intervention a posterior wall duodenal ulcer was found that had penetrated deeply (or perforated) the pancreas. This complication no doubt existed before cortisone therapy was instituted.

The second patient, similarly treated, became symptom-free during cortisone therapy. Nine months later she said, "I am feeling better than at any time during the last ten years" (of her ulcer history).

(*b*) One of two patients treated with 100 mg. of pituitary adrenocorticotropic hormone daily had severer ulcer pain and definitely became worse during therapy. The symptoms and physical observations were those of impending perforation. Not only was there greater severity of ulcer pain but in addition the patient became "tired, restless and sleepy" and had a feeling of extreme "exhaustion." Freckling pigmentation of the face and mild hypertension also developed. Hormone treatment was discontinued, and within 24 hours the ulcer distress subsided and the general condition of the patient improved. At surgical intervention it was found that a posterior wall duodenal ulcer had penetrated (or perforated) the pancreas—a complication that had apparently existed before pituitary adrenocorticotropic therapy was begun.

The other patient was started on a smaller dosage of the hormone (60 mg. daily) which was increased gradually until 100 mg. a day was administered. He began to improve on the fifth day of treatment and became completely symptom free. When higher dosages were reached he tolerated the drug well. No other side effects were noted, except that his face became fuller and took on the so-called buffalo-type contour described by Cushing. This manifestation disappeared when hormone therapy was discontinued. However, several days after discharge of the patient from the hospital his ulcer distress returned, with pains not unlike those he experienced prior to pituitary adrenocorticotropic therapy.

4. For the present, a conservative medical regimen is still the treatment of choice for patients with duodenal ulcer. This regimen consists of rest, frequent small feedings of bland foods, antacids, antispasmodics, sedatives, gastric aspiration and lavage when indicated, and reassurance. When such a regimen fails, one might in addition give cortisone or pregnant mare's urine extract orally (uroanthelone, kutrol®) before resorting to surgical measures. The Mann-Williamson animals treated with these agents lived longer than the untreated animals and, as a group, were in a state of excellent nutrition and greater vigor. In ulcer patients, on the basis of experience to date, pituitary adrenocorticotropic hormone should be used guardedly if at all.

ADDENDUM

We are indebted to Dr. Seymour Gray of Peter Bent Brigham Hospital for the following case history of a woman in whom, as in our first patient treated with pituitary adrenocorticotropic hormone, there developed such severe epigastric pain (while she was receiving initial doses of 25 mg. four times a day, or 100 mg. daily) that the drug had to be discontinued because of definite danger of perforation and localized peritonitis:

History and Examination.—A woman aged 66 entered the hospital with a history of a gastric ulcer, diagnosed and treated for two months in another hospital. The patient apparently had had the ulcer for about five years. She presented the classic symptoms of epigastric pain occurring several hours after meals and relieved by ingestion of food. The patient was awakened occasionally at night by the pain. Roentgenograms revealed a gastric ulcer on the lesser curvature of the stomach. Gastroscopy confirmed the diagnosis. The gastric ulcer could be seen clearly on the lesser curvature of the anterior wall. The ulcer was approximately 1 inch (2.54 cm.) in diameter and approximately ⅜ inch (0.95 cm.) in depth. The impression was gained that this was a benign lesion.

Treatment and Course.—The patient was treated with a regimen of ulcer management consisting of milk and cream and a preparation of aluminum hydroxide gel with magnesium trisilicate (gelusil®) and had a prompt response. Her symptoms cleared and she felt quite well. The ulcer management was then discontinued, except for the ulcer diet and frequent feedings of milk and cream. The patient remained essentially asymptomatic.

Pituitary adrenocorticotropic hormone was then administered in doses of 25 mg. four times a day. Within twenty-four hours the patient began to complain of a recurrence of her ulcer pain. She had sharp, gnawing, upper abdominal pain which was decidedly aggravated during the night and was associated with much flatulence and lower abdominal distention. After three days of hormone administration there was pronounced epigastric tenderness and a localized area of protective muscle spasm which had hitherto not been present. The gnawing epigastric ulcer distress still persisted. After five days of hormone therapy there appeared to be definite evidence of peritoneal irritation, as manifested by an area of severe muscle spasm and exquisite localized tenderness in the epigastrium. The patient complained bitterly of pain, which doubled her up on occasions. She felt that the pain was partly relieved when she drew up her legs.

On the sixth day of hormone administration it was believed that there was definite danger of perforation and localized peritonitis. The white blood cell count[12] had risen from 8,500 to 15,000 and the stools became guaiac positive, although there was no significant fall in the hematocrit. The patient consequently was placed on a regular regimen of milk, cream and aluminum hydroxide gel with magnesium trisilicate. This gave her partial relief, but she still complained of definite ulcer pain, particularly severe at night. The pain, tenderness and physical observations that suggested a localized peritoneal reaction remained unchanged. After ten days of administration of 100 mg. of the hormone a day, all medication was stopped. The roentgenograms revealed no change in the size of the ulcer, and there was no evidence of healing gastroscopically.

The patient was then given frequent feedings of milk and cream and Sippy powders. Within a few hours all her pain disappeared and she became essentially asymptomatic. Within 48 hours the localizing signs in the epigastric area had disappeared and the patient was quite comfortable. After several weeks a gastric resection was performed and the ulcer in the stomach was found to be perfectly benign.

---

[12] In both of our patients treated with pituitary adrenocorticotropic hormone and in one of the two cortisone-treated patients (case 1, Miss V. E.) leukocytosis developed during therapy (D.J.S.).

ENERGY EXPENDED BY PATIENTS ON THE BEDPAN AND BEDSIDE COMMODE

JOSEPH G. BENTON, Ph D, M D.
HENRY BROWN, M D.
and
HOWARD A RUSK, M D.
With the Technical Assistance of Joan Birnbaum, M.S.
New York

"I didn't mind the operation or anything at all about the hospital except the bedpan," is one of the commonest expressions heard from discharged patients. The bedpan as an important adjunct in the management of the bed patient had probably been used for many years previous to the issuance[1] of the American patent in 1877. It is apparent that its use was widespread at the time since it was mentioned in nursing manuals[2] and advertised in catalogs of surgical and hospital supply companies. Defecation on the bedpan is difficult and sometimes dangerous, and in addition to the psychological indignity imposed on the patient it subjects him to physiological discomfort and stress. Despite this, it has been universally used[3] partly through habit and partly because with certain types of cases it is obviously a necessity.

Fortunately there has been a recent tendency to advocate more extensive use of the bedside commode,[4] since it has been assumed that this imposes less strain on the patient in terms of energy expenditure. This situation notwithstanding, the physician who recommends the use of the commode is often considered radical, and the occasional death of a patient while using the conventional bedpan still is construed as an inevitable "act of Providence."

Despite the impression that the use of the bedpan imposes a greater strain on the cardiovascular and respiratory systems than does the use of the commode, there have been no objective studies which would indicate that it subjects the normal as well as the diseased person to an unfavorable stress or greater energy expenditure. Thomas and Harrison[5] in discussing the relationship of decrease in metabolism and bedrest, stated that "data are needed concerning the relation of defecation to this problem. The respective metabolic increments induced by using a bed pan and a bedside commode should be investigated."

Because of this and because there is evidence that prolonged bed rest is harmful and that the practice of early ambulation is beneficial in a wide variety of clinical states,[6] the present study was undertaken as one phase of a broader exploration to determine the energy cost of activities of daily living and selected occupational activities in normal persons as well as in patients with disease that requires their prolonged confinement to bed.

METHODS

The facility of measurement of oxygen consumption with the closed circuit metabolism apparatus during activity[7] and the use of such data as a measure of the energy cost of activity have already been established.[8] These methods using a 9 liter respirometer of the Benedict-Roth type have been adapted to the present study because they are simple and also the most universally applicable.

Patients were selected from the wards of the Fourth (New York University) Medical Division and the Physical Medicine and Rehabilitation Service of Bellevue Hospital. A total of 28 subjects was studied; 15 were cardiac patients and the remainder either normal or with other diseases as indicated in table 1. Some of the normal subjects were hospital personnel. At the time of study all the cardiac patients were compensated and on an adequate maintenance regimen. An attempt was made to match subjects in each group with regard to ranges of age, sex, weight and height. Diagnoses and other data pertaining to the subjects are listed in tables 1 and 2. These persons were all ambulant or semiambulant and had been required, on a physician's orders, to use the bedpan during a past or the current hospital admission. No subject was included in the series who presented evidence of musculoskeletal disability, thyroid disease or blood dyscrasia.

Early in the investigation it became apparent that there were serious obstacles to the study of patients during actual defecation. Not the least of these were psychogenic and temporal factors. It was therefore decided to have the subjects simulate the process as closely as possible by means of "bearing down" or performing Valsalva maneuvers, on both the bedpan and

---

Supported by a grant from the Milbank Memorial Fund

From the Department of Physical Medicine and Rehabilitation, New York University College of Medicine, and the Department of Physical Medicine and Rehabilitation, Bellevue Hospital, New York University-Bellevue Medical Center.

Dr Charles F. Wilkinson Jr., director of the Fourth (New York University) Medical Division, Bellevue Hospital gave us access to clinical material and Dr Donald Mainland, professor of biostatistics, Department of Preventive Medicine, New York University College of Medicine, reviewed the statistical data.

Also aiding us in this study were Drs J Murray Steele, director of the Research Service, New York University Medical Division, Goldwater Memorial Hospital, Robert L Levy, Department of Medicine, College of Physicians and Surgeons, Columbia University and Clarence E de la Chappelle, professor of medicine, New York University Post Graduate Medical School

[1] Merriman, C S · Bed Pans Patent Specifications, No 195521, Sept 25, 1877, Index Catalogue, 1897, of the Library of the Surgeon General's Office, U. S Army, vol. 2, p 188

[2] Battlehner, F.: Anleitung zur Krankenwartung und Pflege Verwundeter, Karlsruhe, C. F. Müller, 1880, p 27.

[3] Tice, F.: Practice of Medicine, Hagerstown, Md, W. F. Prior Company, Inc, vol. 6, 1940, p 332a Levy, R L: Diseases of the Coronary Arteries and Cardiac Pain, New York, The Macmillan Company, 1936, p 348 Beckman, H.: Treatment in General Practice, ed 5, Philadelphia, W B Saunders Company, 1945, p 719 East, T. Cardiovascular Disease in General Practice, ed 2, London, H. K Lewis & Co, Ltd, 1946, p 39 Brams, W. A. Treatment of Heart Disease, Philadelphia, W. B Saunders Company, 1948, pp 54 and 78

[4] Bramwell, C, and King, J T.· The Principles and Practice of Cardiology, London, Oxford University Press, 1942, p. 423. de la Chapelle, C E: The Management of the Acute Episode in Coronary Occlusion, Bull New York Acad Med **19**: 201, 1943 Albrecht, F. K.· Modern Management in Clinical Medicine, Baltimore, Williams & Wilkins Company, 1946, p 263 Eggleston, C, in Cecil, R. L: Textbook of Medicine, ed 7, Philadelphia, W. B. Saunders Company, 1947, p 1225. Friedberg, C K. Diseases of the Heart, ibid 1949, pp 164 and 484 Stroud, W D, and Stroud, M. W., III, in Stroud, W. D. Diagnosis and Treatment of Cardiovascular Disease, ed 4, Philadelphia, F A Davis Company, 1950, vol 2, p 1173. Bromer, A W, in Stroud, W D Diagnosis and Treatment of Cardiovascular Disease, ed 4, ibid 1950, vol 1, p 487. DeGraff, A. C: Personal communication to the authors Levy, R L.: Diseases of the Coronary Arteries and Cardiac Pain, New York, The Macmillan Company, 1936, p 335

[5] Thomas, W C, and Harrison, T. R: Effect of Artificial Restriction of Activity on Recovery of Rats from Experimental Myocardial Injury, Am J. M Sc **208**: 436, 1944

[6] Harrison, T R · Abuse of Rest as a Therapeutic Measure for Patients with Cardiovascular Disease, J. A. M A **125**: 1075 (Aug 19) 1944. Powers, J H Abuse of Rest as a Therapeutic Measure in Surgery · Early Postoperative Activity and Rehabilitation, ibid **125**: 1079 (Aug 19) 1944 Dock, W: Evil Sequelae of Complete Bed Rest, ibid **125**: 1083 (Aug. 19) 1944. Levine, S A Some Harmful Effects of Recumbency in Treatment of Heart Disease, ibid **126**: 80 (Sept 9) 1944

[7] Knipping, H. W.. Uber die Funktionsprüfung von Atmung und Kreislauf, Beitr z Klin. d Tuberk **88**: 503, 1936, Beitrag zur klinischen Funktionsprüfung von Atmung und Kreislauf, ibid **92**: 144, 1938

[8] Weiss, R A, and Karpovich, P V · Energy Cost of Exercises for Convalescents, Arch Phys Med **28**: 447, 1947. Knowles, E: Some Effects of the Height of Ironing Surface on the Worker, Cornell Experiment Station Bulletin 833, Cornell University, Ithaca, N Y, 1946 Bratton, E C. Oxygen Consumed in Eight Selected Component Activities in Household Tasks, Thesis, New York State College of Home Economics, Cornell University, Ithaca, N. Y, 1949

TABLE 1—*Occupation, Age, Sex and Diagnosis of Fifteen Cardiac and Thirteen Noncardiac Subjects*

Subject	Age	Sex	Occupation	Diagnosis * at Present Hospitalization
Group 1, Cardiacs				
A S	50	M	Tailor	Arteriosclerotic heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, old anterior wall myocardial infarct, acute posterior wall infarct, regular sinus rhythm, congestive heart failure, class IV E to III D
R S	47	M	Merchant mariner	Arteriosclerotic and hypertensive heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, acute anterior wall myocardial infarct, regular sinus rhythm, anginal syndrome, congestive heart failure, class IV E to III D
W M	49	M	Unemployed	Rheumatic heart disease, enlarged heart, mitral insufficiency, mitral stenosis, auricular fibrillation, acute pulmonary edema, class IV E to III C, hypertension, etiology?
A P	43	M	Bartender	Heart disease, etiology unknown (arteriosclerotic? syphilitic? hypertensive?), enlarged left ventricle, dilated aneurysmal aorta, aortic stenosis, aortic insufficiency, regular sinus rhythm, left bundle branch block, first degree auriculoventricular block, acute left ventricular failure, class IV E to II B, syphilis, late latent, treated
D E	51	M	Unemployed	Rheumatic heart disease, enlarged heart, mitral insufficiency, mitral stenosis, aortic insufficiency, aortic stenosis, auricular fibrillation, class III C, diabetes mellitus, mild
J B	33	M	Restaurant worker	Rheumatic heart disease, enlarged heart, mitral insufficiency, mitral stenosis, aortic insufficiency,? aortic stenosis, regular sinus tachycardia, class II D, subacute bacterial endocarditis, active, under treatment
L R	59	M	Unemployed	Hypertensive heart disease, slightly enlarged heart, regular sinus rhythm, class I A, status postoperative for gastroenterostomy, secondary to peptic ulcer, colitis, chronic, mild, renal calculus, staghorn type, right kidney
M P	65	F	Housewife	Heart disease, etiology unknown, enlarged left ventricle, enlarged right ventricle, enlarged left auricle, auricular fibrillation, class III C
W B	64	M	Electrician	Arteriosclerotic and hypertensive heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, valvular sclerosis, regular sinus rhythm, occasional auricular and ventricular premature contractions, class I B
F W	56	M	Cook	Arteriosclerotic heart disease, coronary sclerosis, myocardial fibrosis, acute myocardial infarct, regular sinus rhythm, class IV E to III C
A G	53	M	Unemployed	Arteriosclerotic and hypertensive heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, paroxysmal ventricular tachycardia, first degree auriculoventricular block, left bundle branch block, coronary insufficiency, class III C
S R	63	M	Unemployed	Arteriosclerotic and hypertensive heart disease, enlarged heart, dilated aorta, calcific aortic stenosis, coronary sclerosis, myocardial fibrosis, aortic insufficiency, acute left ventricular failure with pulmonary edema, class IV E to III C
M G	44	F	Housewife	Rheumatic heart disease, enlarged heart, mitral insufficiency, mitral stenosis, regular sinus rhythm, class II B
C C	65	M	Unemployed	Arteriosclerotic and hypertensive heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, congestive heart failure, right hydrothorax, class IV E to III C
Y B	62	M	Barber (unemployed)	Arteriosclerotic and hypertensive heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, sinus tachycardia, left ventricular failure, class IV E to III C, chronic bronchitis, chronic pulmonary fibrosis and emphysema
Group 2, Noncardiacs				
H B	31	M	Physician	No disease
R T	25	M	Laborer	Syphilis, late latent, untreated
E G	61	M	Unemployed	Laennec's cirrhosis with jaundice and edema
C W	47	M	Unemployed hospital attendant	Acute alcoholism, gastritis, acute, exogenous
F D	50	M	Printer	Rheumatoid arthritis, acute, active
C P	32	M	Electrician	Glomerulonephritis, acute, diffuse
W W	25	M	Unemployed actor	Diabetes mellitus
D D	20	F	Machine operator	Glomerulonephritis, acute, diffuse
K B	35	M	Physician	No disease
W N	34	M	Cab driver	Duodenal ulcer, active
L J	63	M	Unemployed	Hemochromatosis
F G	43	M	Physician	No disease
T R	36	M	Physician	No disease

---

* The cardiac diagnoses are given according to the nomenclature recommended by the New York Heart Association in their publication "Nomenclature and Criteria for Diagnosis of Disease of the Heart," New York, 1940. The classification by Roman numerals and capital letters refers to the functional capacity and therapeutic classification, respectively.

Functional Capacity

Class I—Patients with a cardiac disorder without limitation of physical activity. Ordinary physical activity causes no discomfort.
Class II—Patients with a cardiac disorder with slight to moderate limitation of physical activity. Ordinary physical activity causes discomfort.
Class III—Patients with a cardiac disorder with moderate to great limitation of physical activity. Less than ordinary physical activity causes discomfort.
Class IV—Patients with a cardiac disorder unable to carry on any physical activity without discomfort.

Therapeutic Classification

Class A—Patients with a cardiac disorder whose ordinary physical activity needs no restriction.
Class B—Patients with a cardiac disorder whose ordinary physical activity needs no restriction but who should be advised against unusually severe or competitive efforts.
Class C—Patients with a cardiac disorder whose ordinary physical activity should be moderately restricted, and whose more strenuous habitual efforts should be discontinued.
Class D—Patients with a cardiac disorder whose ordinary physical activity should be markedly restricted.
Class F—Patients with a cardiac disorder who should be at complete rest or confined to bed.

the commode for at least two trials of each. The procedures were fully explained and demonstrated to each subject. Uncooperative patients and those who had difficulty in understanding what was required were excluded from the study.

The tests were conducted in a small, quiet room away from the ward, using a low hospital bed with an innerspring mattress at a height of 22 inches (56 cm.) from the floor. A conventional metal bedpan was utilized. The bedside commode used was at approximately bed height (i. e., the height of the seat was 18 inches [46 cm.] from the floor) and was constructed with a conventional toilet seat and a back with two arm rests for support of the patient. The bed as well as the commode were enclosed by ward screens, permitting privacy for the subject. The observer sat outside the screens noting the record of respiration on the recording drum of the respirometer. Frequent observations were discreetly made through a small opening in the screen to assure the performance of the various maneuvers in the prescribed manner.

Table 2.—*Summary of the Mean Values and Ranges for the Age, Weight, Height, Body Surface Area and Resting Metabolism of Fifteen Cardiac Subjects and Thirteen Noncardiac Subjects*

	Age, Yr.	Weight, Lb	Height, In.	Body Surface Area, Sq. M.	Resting Metabolism,* Ml. O_2/Min
15 Cardiacs (13 males, 2 females)					
Mean	53.6	148	64.0	1.72	267
Range	33-65	127-172	61.0-69.5	1.60-1.82	223-334
13 Noncardiacs (12 males, 1 female)					
Mean	38.6	156	66.75	1.81	251
Range	20-63	112-200	62.25-71.5	1.49-2.08	177-321
All subjects					
Mean	46.7	152	65.2	1.76	260
Range	20-65	112-200	61.0-71.5	1.49-2.08	177-334

* Determined with the patient at rest in the supine position and corrected to standard conditions of temperature and pressure.

The tests were performed in all instances approximately two hours after meals. At each session both a bedpan and a commode experiment were carried out as described below. A 15 to 20 minute rest period was allowed between the two procedures, and on successive days the order of the maneuvers was alternated. The sequence of experiments was such that each subject served as his own control for purposes of comparing the two activities.

During the tests, male patients were attired in pajamas and females in hospital gowns. In order to allow free movement of the patient, the connection between the mouthpiece and the respirometer was made with 10 foot (205 cm.) lengths of flexible rubber tubing. Conventional rubber mouthpieces and noseclips were used, and the patient held the metal three way valve with one hand to avoid displacement of the mouthpiece when changing position.

The subjects rested in bed for 15 minutes prior to the actual experiment. The noseclip was adjusted and checked for leaks; the mouthpiece was placed in position, and recording of oxygen consumption was begun while the subject was in the supine position. Resting oxygen consumption was recorded for a period of four to six minutes. When it was apparent that an equilibrium had been attained, a signal was given by the observer for the patient to begin one of the following two activities, during which time oxygen consumption was continuously recorded:

1. The patient (if a male) untied or unbuttoned his pajama pants, sat up, turned, slid off the bed and sat down on the commode seat adjacent to the bed. He remained seated and performed 10 Valsalva maneuvers which simulated straining at stool. He then cleansed himself with toilet tissue and at a second signal from the observer pulled up his trousers and returned to bed, again assuming the supine position. The time between the two signals was three minutes

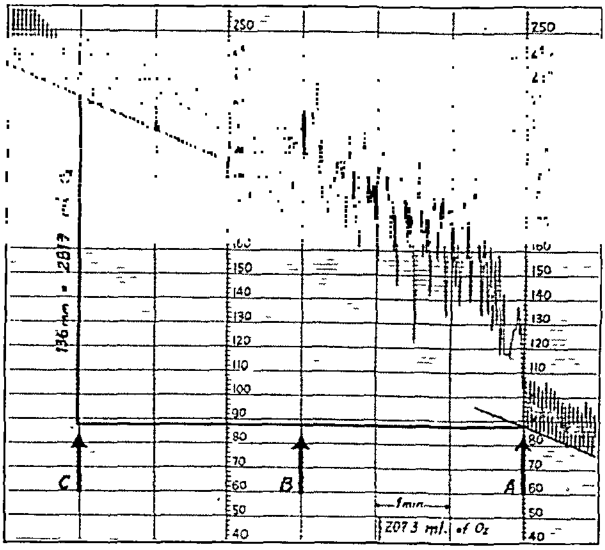


Fig. 1.—Photograph of a portion of the respirometer record showing oxygen consumption in cardiac subject A. P. while performing 10 Valsalva maneuvers (indicated by small arrows) on the bedpan. *A* indicates the start of the activity; *B*, the end of the activity and beginning of recovery, and *C*, the end of the three minute period of recovery.

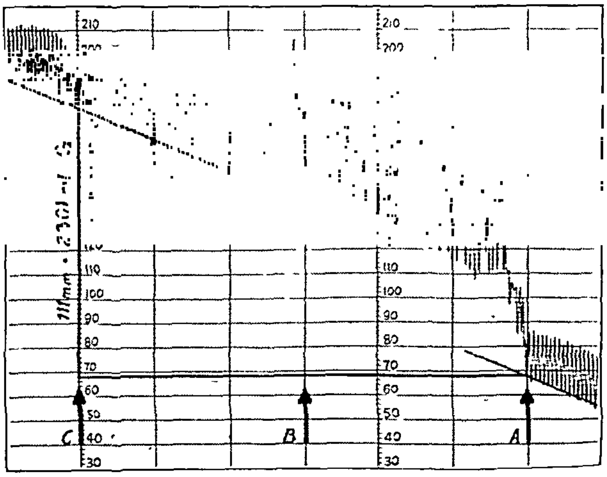


Fig. 2.—Same as figure 1, but with the cardiac subject, A. P., on the bedside commode. Note that oxygen consumption of the patient is 518 milliliters (uncorrected) greater on the bedpan (fig. 1) than on the commode.

2. The patient untied his pajama pants, drew them down, mounted the bedpan (which had been placed on the bed before the start of the test) and sat on it in the center of the bed. This position was selected since observations made on various services of this hospital indicated that this was the common practice. He was permitted to mount the bedpan in any manner he found easiest. While in this position, he performed

10 Valsalva maneuvers He then cleansed himself with toilet tissue and at a second signal, three minutes after the first, resumed the supine position in bed and pushed the bedpan aside

In all instances the recording of oxygen consumption of the patient in the supine position was continued for a four to six minute period after completion of the activity in order to determine the "recovery" oxygen consumption. It was found that the rate of oxygen consumption during the recovery period reached a steady state usually within one minute and always within three minutes. This recovery rate was almost identical with the preactivity resting rate

TABLE 3—*Comparison of the Mean Excess Oxygen Consumption for the Use of a Bedpan and a Commode*

Subject	No of Trials (N)	Mean of *N* Trials Bedpan (B)	 Commode (C)	Difference (B — C)
Forty trials by 15 cardiac subjects				
W B	1	1,375	798	+ 577
A S	3	837	631	+ 206
R S	4	1,028	817	+ 211
W. M	3	909	742	+ 167
A P	3	1,295	746	+ 549
D E	3	921	623	+ 298
L R	3	879	535	+ 344
J B	3	579	487	+ 92
M P	2	811	625	+ 186
F W	3	659	382	+ 277
A G	3	1,212	851	+ 361
S R	2	1,305	999	+ 306
M G	2	626	383	+ 243
C C	3	683	547	+ 136
Y B	2	1,901	803	+ 1,098
Mean for 15 subjects		1,001	665	+ 337
Thirty trials by 13 noncardiac subjects				
H B	2	1,221	1,056	+ 168
R T	2	799	550	+ 249
E G	4	1,398	938	+ 460
C W	3	628	518	+ 110
F D	3	797	515	+ 282
O P	2	799	560	+ 239
W W	2	758	674	+ 84
D D	2	520	335	+ 185
K B	2	904	517	+ 387
W N	2	1,129	577	+ 552
L J	2	1,796	986	+ 810
F G	2	841	458	+ 383
T R	2	858	678	+ 180
Mean for 13 subjects	..	958	646	+ 312

* In milliliters of oxygen at standard conditions of temperature and pressure in excess of the resting oxygen consumption for the six minute test period, which includes three minutes of activity and three minutes of recovery

Data were calculated from the graphic records (figs. 1 and 2). Energy cost of each of the maneuvers was determined in the following manner: The oxygen consumption during the three minutes of bedpan or commode activity and three minutes of recovery was measured from the graphic record. From this was subtracted the resting oxygen consumption for a six minute period This resulted in a figure for excess oxygen consumption for the six minutes activity and recovery period which was the energy cost of the particular maneuver under study. All gas values are corrected to standard conditions of temperature and pressure and expressed as milliliters of oxygen in excess of the resting oxygen consumption.

RESULTS

Early in the course of the study it became apparent that in all patients of the noncardiac as well as the cardiac group there was a consistently greater oxygen consumption for the performance of the outlined procedures on the bedpan than on the commode (table 3). It was also noted that there was no consistent effect of accommodation on serial performance, some subjects using more while others consumed less oxygen at successive trials There frequently was considerable variation at succeeding trials in the same person. Furthermore, the two groups of subjects showed no significant difference in oxygen consumption with regard to the two respective maneuvers. This was anticipated, since the amount of work done in either activity was not great enough to incur a significant oxygen debt. On this basis the data for the entire series, including both cardiac and noncardiac subjects, were combined and statistically analyzed (table 4).

When the differences of the means in oxygen consumption of the entire series of subjects in the two categories of activity were analyzed, a statistically highly significant *p* value (< 0.001) was found.[9] There was a mean of 50.7 per cent greater increment of oxygen consumption above resting levels in the cardiac group while using the bedpan and a mean of 48.4 per cent for the noncardiac group.

TABLE 4—*Statistical Analysis of the Data Comparing the Mean Excess Oxygen Consumption for the Use of a Bedpan and a Bedside Commode in Twenty-Eight Subjects*

Subjects	No	Mean Difference (B — C) Ml O	Standard Error of Mean Difference	t = Mean Difference / Standard Error	*p* Value*
Cardiac	15	+ 337	64.82	5.2	<0.001
Noncardiac	13	+ 312	56.51	5.5	<0.001
All subjects	28	+ 325	42.80	7.6	<0.001

Percentage mean excess oxygen consumption for use of bedpan over commode in

(1) 15 cardiac subjects $\frac{337 \times 100}{665} = 50.7\%$

(2) 13 noncardiac subjects $\frac{312 \times 100}{646} = 48.4\%$

* Computed according to Fisher and Yates [9]

Blood pressure, pulse rate and electrocardiographic tracings taken before, during and after the two activities were subject to many extrinsic physical and emotional factors and resulted in extremely variable data. For these reasons it was deemed not feasible to study these routinely, especially since a cardiodynamic study of patients while performing Valsalva maneuvers has been reported by McGuire and others.[10] These workers found that during such straining there occurred decided changes in rate and rhythm of the heart, accompanied with sharp rises in intra-arterial and intrapleural pressures; they concluded that cardiac arrhythmias, vascular hemorrhage or pulmonary embolism were the mechanisms responsible for death of subjects while straining at stool

COMMENT

While it is obvious to both the user and the observer that the use of the bedpan causes psychological trauma, irritation and often resentment, the results of this study indicate that it is an unphysiological procedure from the standpoint of energy cost. It would seem that the supported sitting or squatting position is the optimum posture for defecation. This is a truism which carries over from studies of primitive obstetric customs in which the squatting position was the postural choice for parturition. The conventional use of the bed pan in bed precludes the assumption of the customary posture of choice in defecation and hence makes this method undesirable. The commode, on the other hand, allows for the assumption of a supported, familiar posture and, aside from the subjective feelings of the patient, imposes on him less physiological stress.

---

[9] Fisher, R A, and Yates F Statistical Tables for Biological Agricultural and Medical Research, New York, Hafner Publishing Company, 1948

[10] McGuire, J, and others Bed Pan Deaths, Am Pract 1:23, 1950 Contribution a l'Étude de la ranimation dans les états de mort apparente

It is recognized that a sudden severe straining or movement on either the bedpan or the commode can cause precipitous changes in blood pressure or decided rises in intrapleural and abdominal pressures which might induce serious cardiovascular accidents, but from both a postural and energy-conserving standpoint the strain necessary for defecation is lessened by the use of the commode or stool. Moreover, it is also recognized that for patients who are unconscious, disoriented, decidedly debilated or afflicted with severe physical disabilities, the use of the bedpan is a matter of practical necessity.

In a small series of three patients the use of the bedpan with the legs swung over the side of the bed and feet resting on a small stool resulted in less oxygen consumption than the use of the bedpan in the sitting position in bed. In this connection, the posture of the severely ill or debilitated patient for whom use of the commode is not feasible may be altered by use of pillows and adjustment of the bed to conform somewhat to the supported position, and in such instances this may be of decided benefit.

From postural considerations it might be assumed that had the supine position been used with the bedpan, the difference in energy cost would have been even greater between subjects on the bedpan and those on the bedside commode.

SUMMARY AND CONCLUSIONS

1. Oxygen consumption (in excess of resting) was determined by means of a closed circuit respirometer in a group of 13 noncardiac and a group of 15 compensated ambulant cardiac subjects while performing Valsalva maneuvers on the bedpan and on the bedside commode under standardized conditions.
2. There was no significant difference for each of the respective activities in the noncardiac and cardiac groups, but energy expenditure in terms of oxygen consumption above resting levels was consistently higher on the bedpan than on the commode (50.7 per cent for the cardiac group and 48.4 per cent for the noncardiac).
3. The difference in mean excess oxygen consumption for the use of a bedpan and a commode in all subjects was objectively and statistically highly significant.

Malignant Tumors of Bone.—Bone sarcoma has one main difference from other malignant lesions in that it most often affects relatively young persons. Its highest point of incidence is among persons of 15 to 20 years of age, according to statistics compiled by Christensen. Plans for cancer detection, therefore, must include this age group, if persons suffering from malignant tumors of bone are to benefit under any mass tumor detection program. Mayo Clinic statistics, recently compiled by Meyerding and Jackson, show that in 75 per cent of cases osteogenic sarcoma occurs about the knee. This localization to the lower end of the femur and the upper end of the tibia and fibula in three fourths of all cases of osteogenic sarcoma is extremely significant. It proves, in my opinion, that trauma, occurring as it does so frequently about the knee, is a definite inciting factor in the production of certain malignant bone tumors.—Mark B. Coventry, M.D., Differential Diagnosis of Malignant Bone Tumors, *Annals of Surgery,* November 1950.

Special Article

MANUAL ARTIFICIAL RESPIRATION

Comparison of Effectiveness of Various Methods on Apneic Normal Adults

ARCHER S. GORDON, M.D.
FRANK RAYMON, B.S.
MAX SADOVE, M.D.
and
A. C. IVY, M.D.
Chicago

In the final analysis, the critical evaluation of manual methods of artificial respiration requires documented field tests,[1] so that the practicality and adequacy of the various technics may be determined. However, the practical utilization of any manual resuscitation procedure must stem from results obtained under ideal or controlled experimental conditions, because of the *numerous uncontrolled factors incident to field testing.*

Anatomic considerations preclude the use of animals for this work. However, three types of human subjects can be utilized: (*a*) nonrigid corpses, immediately after death and before the onset of postmortem rigor, (*b*) conscious, normal subjects, trained to "voluntarily suspend respiration," or hyperventilate to the point of apnea, and (*c*) normal subjects rendered apneic by curare (or a curare-like preparation) and/or anesthetic agents. Patients rendered apneic by central nervous system pathology, such as anterior poliomyelitis, are inadequate, in our experience,[1] for the unequivocal evaluation of all manual maneuvers.

In a previous study[2] we compared the effectiveness of the various manual methods for artificial respiration by first using warm corpses and then subjects trained to suspend their respiration voluntarily. In the present study we have again compared the effectiveness of these methods on subjects with voluntary suspension of respiration and the same subjects when they were made apneic by curare-anesthesia agents.

METHODS

Eleven normal, healthy, adult males, ranging in age from 22 to 31 years and weighing 130 to 205 pounds (59 to 93 Kg.) were used. The history and physical examination of each showed freedom from cardiorespiratory pathology, a normal electrocardiogram and an essentially normal chest roentgenogram. The normal resting tidal air was determined, and, after proper indoctrination, the pulmonary ventilation effected by nine manual methods of artificial respiration was measured while the subject passively suspended respiration. All measurements were made on a standard basal metabolic rate spirometer (Sanborn waterless) via a rubber mouthpiece and with the usual nasal clip in place. Thereafter, each subject was premedicated with an adequate dose of atropine sulfate (0.60 or 1.20 mg.) either intravenously or intramuscularly, depending on the interval before anesthesia was begun. Then each subject was given a mixture containing 500 mg. of thiopental sodium and 6 cc. of standard *d*-tubocurarine chloride (a total of 120 units, or 18 mg. of the hydrated

---

Assisted in part by grants from the American National Red Cross and the Council on Physical Medicine and Rehabilitation of the American Medical Association.

From the Departments of Clinical Science and Surgery (Anaesthesia), University of Illinois College of Medicine, Chicago.

[1] Unpublished results of experiments at Municipal Contagious Diseases Hospital, Chicago.

[2] Gordon, A. S.; Fainer, D. C., and Ivy, A. C.: Artificial Respiration: A New Method and Comparative Study of Different Methods in Adults, J. A. M. A. this issue, p. 1455.

salt) in a total of 21 cc. of solution. Injection of the solution into one of the cubital veins required only 30 to 60 seconds. This depressed respiration to apnea, or near-apnea, and artificial respiration was then started via the breathing bag of the anesthesia machine, with the use of a cyclopropane-oxygen mixture. If respiration was not assisted and cyclopropane added, one could detect the diaphragm weakly attempting to initiate respiration. When the subject was completely apneic, a cuffed endotracheal tube was inserted into the trachea, with laryngoscopic visualization. There was no "bucking" of the subject in response to passage of the tube. No complications with reflexes or intubation occurred. The cuff that surrounded the tube was inflated with air to make the system gas tight.

The cyclopropane-oxygen mixture was again administered until complete relaxation and total apnea were attained. When the subject was in this state, the slightest pressure on the anesthesia bag created an exchange. The subjects were all examined for mechanical difficulties (such as endobronchial intubation). Each method of artificial respiration was then executed at a rate of 12 times per minute for periods exceeding one-half minute each. Between each method the subject was ventilated with the anesthetic mixture to insure complete apnea and freedom from any muscular activity. This state was reached and maintained during the measurement of each maneuver. In no case was any muscular activity or spontaneous respiratory movement noted on either the graphs or the subjects during a test run. Pulmonary ventilation was again measured on a standard basal metabolic rate spirometer filled with oxygen; the spirometer was calibrated by displacement of varying known amounts of air into the apparatus. This was adapted directly to the endotracheal tube. A flutter valve was interposed between the subject and the spirometer, providing separate inspiratory and expiratory circuits, thus reducing the size of the dead air space. A soda lime cannister, provided in the spirometer, prevented accumulation of carbon dioxide.

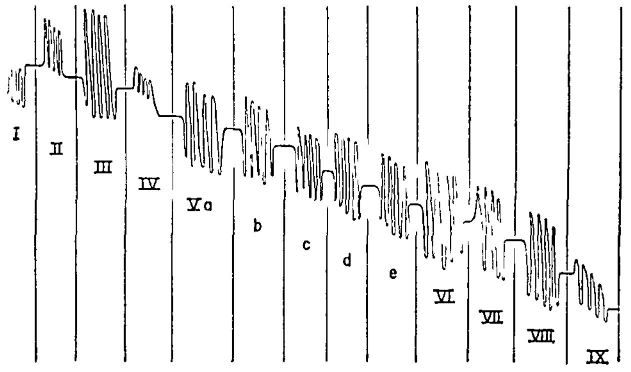


Fig 1.—Sections of graphic results obtained on one subject (R P) with the basal metabolic rate spirometer with various methods of manual artificial respiration I, Schafer (prone pressure), II, Emerson, (hip lift); III, Schafer Emerson Ivy (hip lift prone pressure), IV, Emerson (hip roll); V, Schafer-Emerson Ivy (hip roll prone pressure) as accomplished by five different operators (*a*, *b*, *c*, *d* and *e*), VI, Silvester; VII, Drinker modification of Nielsen (arm lift prone pressure), VIII, Nielsen (arm lift scapular pressure), and IX, Eve (rocking)

At the conclusion of the experiment the subjects were given nitrous oxide-oxygen mixtures (80:20) until muscular activity was such as to indicate that there would be an adequacy of exchange without the endotracheal tube. This state was usually reached in about 35 minutes. In one case the tube was removed in approximately 40 minutes and the subject was unable to maintain his airway. After reintubation, nitrous oxide-oxygen mixtures were administered for an additional half-hour.

The only sequela noted was a sore throat of varying degree in several of the candidates. All walked out of the operating room within 2.5 hours after the initial curare–thiopental sodium injection. These comments regarding our fortuitous experiences in this work should not be misconstrued as statements of the simplicity and safety of the method. Our cognizance of the many hazards and possible complications was of inestimable value in the prevention of such eventualities However, it must be emphasized that competence in anesthesiology and an accurately perfected experimental technic are prerequisites for such an undertaking.

METHODS OF ARTIFICIAL RESPIRATION STUDIED

The manual methods of resuscitation compared were those that are generally used or advocated today. Every method was applied to every subject during both the passive suspension phase and the curarization phase by the same operator (A. S. G.) except the Drinker modification of the Nielson method, which requires two operators. In this case, the assistant was always the same (F. R.). In this way, we hoped to obviate any variability that might have been introduced by using several persons, who may have performed the procedures in different manners.

The Eve rocking method[3] of activation of the inert diaphragm was included because (*a*) it was easily adapted to our procedure here, (*b*) it was previously included in our study on nonrigid corpses[2] and (*c*) it is commonly suggested for lay use as a "manual" method. Strictly speaking, however, the Eve method, or any method that necessitates the use of equipment—either provided or improvised—must always be considered a mechanical method. Nevertheless, the Eve tilt table was included in the study, despite the fact that it is not a manual method per se.

The manual methods performed were (*a*) Schafer (prone pressure),[4] Emerson (hip lift),[5] Emerson (hip roll),[2] Silvester,[6] Nielsen (arm lift-scapular pressure),[7]

---

[3] Eve, F. C.: Activation of the Inert Diaphragm by a Gravity Method, Lancet **2:** 995 (Nov. 5) 1932 Killick, E M., and Eve, F. C.: Physiologic Investigation of Rocking Method, Lancet **2:** *740 (Sept 30) 1933* Eve, F. C: Artificial Respiration Explained, Baltimore, Williams & Wilkins Company, 1947. Killick, E M.; Leeds, M. B; Sowell, E. M, and Crowden, G. P.: Principles of Artificial Respiration in First Aid, Lancet **2:** 897 (Oct. 21) 1939.

[4] Schafer, E. A.: Artificial Respiration in Man, in the Harvey Lectures, 1907-1908, Philadelphia, J. B. Lippincott Company, 1909, pp 223-243. Artificial Respiration, in American Red Cross First Aid Text Book, Philadelphia, The Blakiston Company, 1940, pp 108 130 Burke, T.: Cheating Death Through Resuscitation, Nat. Safety News **32:** 20 (July) 1935 Schafer, E. A.: Artificial Respiration in Its Physiologic Aspect, J. A. M. A. **51:** 801 (Sept 5) 1908

[5] Gordon, Fainer and Ivy.[2] Emerson, J. H.: A Manual Method of Artificial Respiration by Lifting the Hips, Cambridge, Mass, the Author, 1948 and 1949. Whittenberger, J L, and Sarnoff, S J.: Physiologic Principles in the Treatment of Respiratory Failure, M. Clin North America **34:** 1335 (Sept) 1950

[6] Silvester, H. R.: A New Method of Resuscitating Stillborn Children and of Restoring Persons Apparently Dead or Drowned, *Brit M. J.* **2:** 576 (July 17) 1858.

[7] Nielsen, H.: *Method of Resuscitation*, *Ugesk. f* Laeger **94:** 1201 (Dec. 15) 1932. Lindhard, J.: Artificial Respiration According to Nielsen Method, Ugesk f. Laeger **96:** 67 (Jan 18) 1934. Gentles, H W.: A New Method of Artificial Respiration, Nat Safety News **32:** 34 (Aug) 1935. MacLachlin, W.: The Holger-Nielsen Method of Resuscitation, Nat. Safety News **32:** 52 (Sept) 1935 Manual of Artificial Respiration, Danish Red Cross, Holger Nielsen Committee, Hellerup, Otto Terrer, 1947, pp. 5-20

[8] Drinker, C K, and Shaw, L. A.: A Modification of the Nielsen Method of Artificial Respiration, J. Indust. Hyg & Toxicol **17:** 243 (Nov) 1935. King, B. G: A Comparison of Pulmonary Ventilation in 3 Methods of Artificial Respiration, J. Indust Hyg. & Toxicol **20:** 576 (Nov.) 1938. Hederer, C: A New Method of Artificial Respiration Combined with the Schafer Method in Order to Correct the Defects and Augment the Physiological Value, Bull. Acad. de méd. **113:** 632 (May 14) 1935. Héderer, C.: A New Method of Artificial Respiration Combined with Schafer Method, Bull Acad de méd. **114:** 178 (July 30) 1935 Hederer, C.: Method of Artificial Respiration, Arch de méd et pharm nav **125:** 371 (July-Sept) 1935.

Drinker, modification of Nielsen (arm lift-prone pressure),[8] Schafer-Emerson-Ivy (hip lift-prone pressure)[9] and Schafer-Emerson-Ivy (hip roll-prone pressure).[2] These methods have all been described and illustrated in a previous communication (*fig. 1 in* Gordon, Fainer and Ivy [2]).

RESULTS

Mechanical and anesthesia difficulties encountered in perfecting the technic invalidated the results obtained on the first subject. Thereafter, perfect relaxation and total apnea were secured, as indicated, in the remaining 10 subjects, and valid graphic tracings were shown by the method previously described (fig. 1).

On the basis of pulmonary exchange secured, the various methods can be divided into major groups. Those utilizing a "push and pull" maneuver produce active inspiration and active expiration, and, in those utilizing a "push" or a "pull" maneuver alone, only one half of the cycle is active and the other half is passive.[2]

The results obtained with passive suspension of respiration (table 1) and total apnea under curare-anesthesia (table 2) were completely corroboratory, although the former method achieved approximately 1.5 times as much pulmonary ventilation as the latter method. Table 3 reveals that all the methods in the "push" or "pull" group gave values approximating the normal resting tidal air in all 10 subjects, whereas the "push and pull" methods were approximately twice as efficacious. The "push and pull" manual methods include the Nielsen (arm lift-scapular pressure), Drinker modification of Nielsen (arm lift-prone pressure), Silvester method, hip lift-prone pressure and hip roll-prone pressure methods and effect approximately twice as much pulmonary ventilation as the prone pressure, hip lift or hip roll methods, which are "push" or "pull" manual methods. The Eve rocking method, a mechanical technic, yielded values intermediate between these two groups.

Certain correlations were noted between the body types of the subjects and the amount of pulmonary exchange elicited by the various methods of artificial respiration (fig. 2). Although in all apneic subjects the "push and pull" methods are superior to "push" or "pull" methods alone, the comparative values are not consistent in subjects of various body types. The values with the "push and pull" methods are disproportionately higher in tall persons than in those of medium or short stature. The Eve method maintains a relatively constant intermediate position, except that in the short stocky body type (only one case) it is as good as any manual method except the hip lift-prone pressure method. The results of hip lift-prone pressure method were consistently highest in all body types except in the tall, thin subject, in whom it was exceeded only by the Silvester method.

COMMENT

Previous evaluations of the efficacy of various manual methods for artificial respiration by other workers have been relatively inconclusive. This is because they (*a*) fail to consider all practical or generally advocated methods, (*b*) use only a few cases and/or (*c*) fail to evaluate pulmonary ventilation, per se, by providing controlled conditions, such as patency of the airway. However, in these studies for the first time the same group of investigators have appraised all the practical manual methods of resuscitation (as well as the Eve rocking method) under ideal, controlled, experimental conditions, for all three types of human subjects.

Pulmonary ventilation on (*a*) warm corpses, (*b*) normal healthy trained adults with passive suspension of respiration and (*c*) the same adults rendered totally apneic with curare-anesthesia are completely corroboratory. All results confirm the observation that, regardless of the type of subject, a "push and pull" maneuver is approximately twice as efficacious as a "push" or a "pull" method alone. The only difference noted is that the totally apneic subjects yield average values that are two times those of the warm corpses, whereas the results with passively suspended respiration are three times those obtained on the corpses (table 3).

Observations on these three types of human subjects have been questioned by some, with respect to their applicability to victims requiring resuscitation. Doubts are raised because of (*a*) early postmortem changes and absence of muscle tone and reflexes in corpses, (*b*) absolute muscular atony in curarized subjects and (*c*) the action of protective reflexes, as well as the difficulty in sustaining a state of passive suspension of respiration in conscious normal subjects. However, these studies indicate that the comparative values with any or all of these three types of subjects reveal the same effectiveness of pulmonary ventilation. It is essential that the corpses be used immediately after death, the curarized-anesthetized subjects be totally apneic and the passive normal subjects be trained adults.

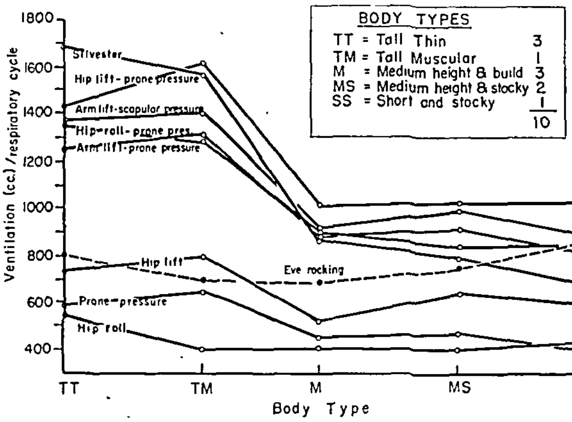


Fig. 2.—Efficacy of the various methods of artificial respiration with respect to specific body types in series of 10 totally apneic, normal, male adults.

The absolute values in any type of subject are not as important as the comparative values with the various manual methods—as long as the method in question results in adequate pulmonary ventilation. The actual values for pulmonary ventilation attained in victims requiring resuscitation probably are to be found between our values for the corpses and those for the totally apneic normal subjects. Those subjects that are most resuscitable probably simulate our totally apneic subjects, whereas victims that are at the limits of resuscitability are more apt to resemble the corpses. The values for the "push and pull" methods in the apneic subjects may, at first, appear excessive. However, these are actually a form of forced inspiration and forced expiration and should be significantly greater than the normal resting tidal air.

Despite the complete muscular atony of the apneic subject, respiratory graphs reveal that, even in the passive inspiratory phase of Schafer prone pressure, the thorax returns to its previous base level (fig 1) This "restitution" recoil is primarily dependent on the structural design of the thoracic cage and its attachments On the other hand, it was noted in the corpses[2] that restitution almost returned the chest to its resting base level (fig 1 in Gordon, Fainer and Ivy[2]) Fixed, emphysematous, senile or deformed chests might fail to respond in this normal manner The smaller values attained with warm corpses are probably due to total absence of reflex activity and a nonfunctioning circulatory system, whereas the greater values in normal passive subjects reflect the inability to completely suppress normal respiratory mechanisms and the desire to breathe

---

[9] Gordon, Fainer and Ivy.[2] Thompson, T. C.: A Method of Artificial Respiration Especially Useful for Paralyzed Patients, J. A. M. A. **104:** 307 (Jan. 26) 1935.

TABLE 1—*Results with Various Methods in Ten Normal, Healthy, Trained Adults with "Passive Suspension" of Respiration**

		Push or Pull Only				Push and Pull					
Subject	Normal Resting Tidal Air	Schafer (Prone Pressure)	Emerson (Hip Lift)	Emerson (Hip Roll)	Eve (Rocking Method)	Nielsen (Arm Lift Scapular Pressure)	Schafer Nielsen Drinker (Arm Lift Prone Pressure)	Hip Roll Prone Pressure	Hip Lift Prone Pressure	Silvester	Body Type†
J M	468	844	736	872	901	1,466	1,344	915	1,208	1 351	SS
M K	529	1,201	1,208	844	1,273	1,330	1,473	1,687	2 261	1 239	M
R P	801	1,038	1,038	786	958	1,826	1,592	1 673	2,531	1 368	TM
W V	797	1,044	777	748	951	1,134	1,287	1,988	1,678	2 135	TT
A T	626	633	1,394	691	515	1,405	1,208	1,554	1,802	1 766	MS
G S	701	572	395	477	963	686	765	939	982	1 273	M
H N		739	704	376	1,010	1,619	1,652	1,169	1,569	2 263	TT
G W	429	849	535	376	715	1,316	1,562	980	861	1 158	M
F S	990	609	844	736	1,273	1,597	1,241	1,720	1,592	1,398	TT
J S	781		1,208	1,150	1,580	1,294	1,559	1,556	2,009	1 344	MS
Average	673 6	810 2	883 9	705 6	1,106 9	1,307 3	1,368 3	1,417 5	1,649 6	1 529 5	

* All methods performed by the same operator all values expressed in cubic centimeters of air
† Body Types TT, tall thin subjects, TM tall muscular M, medium height and build, MS, medium height but stocky, and SS short stocky

TABLE 2—*Results with Various Methods in Ten Normal, Healthy, Trained Adults in a State of Respiratory Arrest Induced with Curare and Anesthesia**

		Push or Pull Only				Push and Pull					
Subject	Normal Resting Tidal Air	Schafer (Prone Pressure)	Emerson (Hip Lift)	Emerson (Hip Roll)	Eve (Rocking Method)	Nielsen (Arm Lift Scapular Pressure)	Schafer Nielsen Drinker (Arm Lift Prone Pressure)	Hip Roll Prone Pressure	Hip Lift Prone Pressure	Silvester	Body Type
J M	468	380	587	421	880	876	797	842	1,032	659	SS
M K	529	348	638	597	511	938	942	1,034	1 076	876	M
R P	801	649	787	400	690	1,397	1,308	1,283	1 615	1,563	TM
W V	797	652	853	535	737	1,352	1,377	1,317	1,667	1,795	TT
A T	626	580	731	397	720	1,159	1,018	1 001	1,191	911	MS
G S	701	431	445	295	787	807	690	725	814	797	M
H N		598	626	474	810	1,035	718	1,173	1,302	1,559	TT
G W	429	538	455	318	748	995	1,010	1,114	1,118	925	M
F S	990	488	704	621	856	1,707	1,615	1,564	1,325	1,701	TT
J S	781	342	598	393	773	807	800	671	856	669	MS
Average	673 6	500 6	635 4	445 1	751 2	1,107 6	1,027 5	1,053 8	1,199 6	1,145 5	

* All methods performed by the same operator, all values expressed in cubic centimeters of air

TABLE 3—*Comparison of Results of Various Methods in the Same Subject When Apneic and with Passive Suspension of Respiration and in Warm Nonrigid Corpses*

		Tidal Air, Cc					
		Warm, Nonrigid Corpses		Totally Apneic Normal Adults †		Passive Suspension of Respiration †	
Methods *	No of Cases	Average	Range	Average	Range	Average	Range
'Push or Pull'							
Schafer (prone pressure)	26	185	28 471	500	342 652	810	609 1 201
Emerson (hip roll)	8	155	71 242	445	295- 621	705	376 1,150
Emerson (hip lift)	26	270	57 605	635	445 853	884	395-1,394
Average		200		527		800	
Eve rocking method (approx 50 degree arc in each direction)	5	300	100 704	751	690 880	1,106	515 1 580
'Push and Pull'							
Silvester	26	590	150 1,166	1,145	659 1,795	1,529	1,158 2 263
Nielsen (arm lift scapular pressure)	26	580	180 1 250	1,107	807 1,709	1,367	686 1,826
Drinker modification of Nielsen (arm lift prone pressure)	26	575	100 1,371	1,027	690 1,615	1,368	765 1 652
Schafer Emerson Ivy (hip lift prone pressure)	26	530	100 1 313	1,199	814 1,667	1,649	861 2 531
Schafer Emerson Ivy (hip roll prone pressure)	8	537	371 799	1,053	671 1,564	1 417	915-1 988
Average		548		1,106		1,466	

* With all methods, multiply by 12 to obtain minute volume
† All values for 10 normal, healthy, male adults, average resting tidal air of 10 subjects equal to 674 cc

Pask[10] concurs in that "there seems little doubt that the conscious subject is quite unsatisfactory for this type of experiment, as true passivity of the respiratory mechanism is unattainable." He studied two intubated subjects anesthetized with a thiopental sodium-ether combination and rendered apneic by forced ether inhalation.[11] In these subjects, he found that the Eve rocking method gave greater pulmonary ventilation than the Silvester, Schafer or hip lift methods. His values are comparable to those obtained in our study, with the exception of the Silvester Method. However, in referring to specific body types, it is observed that the short stocky subject in our results gives comparable values to those in these two cases.

---

[10] Pask, E A The Efficiency of Methods of Artificial Respiration, Medical Research Council, Royal Naval Personnel Research Committee London, His Majesty's Stationery Office 1946

The use of only two cases and the failure to use several of the "push and pull" methods make Pask's results inconclusive in the evaluation of manual artificial respiration and the Eve method. This is especially true in view of our observation that certain body types may give more favorable results with certain methods (fig. 2). Pask infers from oxygen consumption results "that Eve's rocking method may assist blood circulation." However, we do not feel that oxygen consumption alone is a true measure of the circulatory effects of manual artificial respiration or the Eve method. In the determination of the effect of artificial respiration on circulation, any method that depends on oxygen saturation must consider variable amounts of oxygen provided by the different methods. A purely physical method of measuring blood flow, or possibly the direct Fick principle, would be most desirable. However, measurements of blood flow were not included in our work because we were primarily concerned with pulmonary ventilation and could not justify the use of a more involved procedure in our subjects for this determination.

One of the major factors promoting the return of venous blood to the heart is the "sucking" action created by the negative intrathoracic pressure during inspiration. Therefore, any method creating such a condition should augment a failing circulation. All the "push and pull" technics accomplish this. The hip lift-prone pressure and hip roll-prone pressure should be additionally efficacious, since the body is in a head-down position during the inspiratory (sucking) phase and blood may tend to drain toward the heart.

Even in this comparatively small series (10 cases), there is a tendency to correlation between specific body types and the efficacy of pulmonary ventilation with certain manual maneuvers (table 2 and fig. 2).

The hip lift-prone pressure method was universally the most effective, except in the tall thin subject, in whom it was exceeded by the Silvester method (three cases). But the Silvester method was the poorest form of "push and pull" ventilation in the medium and short subjects. In fact, in the short stocky subject (one case) it was even exceeded by the Eve rocking method. However, this series is large enough only to permit inferences on this observation, and a much larger group would be necessary for statistically significant data. Figure 2 reveals the sharp delineation of the various methods into two groups—a "push and pull" and a "push" or "pull" alone, with the Eve rocking method intermediate.

The hip roll-prone pressure method and the Nielsen method (arm lift-scapular pressure) were tried by five operators on one subject so that the variability that might result from more or less instruction and training (fig. 1) might be appraised. Although the differences were not particularly significant, because of the large volumes of air moved (hip roll-prone pressure, range 1,083 to 1,283 cc.; Nielsen, range 1,007 to 1,397 cc.), it is of interest that the most experienced operator (A. S. G.) obtained the best results, with the other four following in the order of their experience with these manipulations. This, logically, emphasizes the value of adequate indoctrination and experience. We must stress, too, the need for proper performance of the hip roll technic. The knee, fist or hand of the operator must always be placed under the hip close to him. Then, when the distant hip is lifted, it is in effect, "rolled" onto the knee, fist or hand. This elevates most or all of the abdominal surface from the horizontal. Without this, inadequate ventilation will most surely result.

The general observation was made that the ease of manipulation was much greater in the apneic subjects in this work, and the corpses in the previous work, than in the conscious passive volunteers. This consideration is of importance in the evaluation of fatigue resulting from the methods, since under practical conditions the subject will more closely resemble one of the former flaccid types. The hip lift-prone pressure method is most fatiguing. However, it can be executed at least during the crucial first few minutes of resuscitation, and when the operator becomes tired he is in the position to continue with the easier hip roll-prone pressure. If prolonged resuscitation is necessary by a single operator, he can still continue to use the Schafer prone pressure alone during short rest periods.

The subjects were asked to evaluate the efficacy of the various methods subjectively during the passive suspension of respiration. The arm lift-scapular pressure and the hip lift-prone pressure were considered to create the subjective impression of the most pulmonary ventilation. Several persons volunteered the information that the arm lift-scapular pressure method caused moderate distress in their shoulders. One subject noted slight pain in his back with the hip lift and the hip roll. Further questioning revealed a previous back injury. The Silvester method was commented on favorably by some, but it must be remembered that these were conscious subjects, and the possibility of oropharyngeal occlusion of the airway by the tongue in the supine position was not present here.

For the sake of completeness, both the eponymic and functional names of the various methods have been included in this discussion. However, it is strongly recommended that those methods lending themselves easily to functional names be referred to by such names rather than by the name of the originator or proponents. Almost a century of use has thoroughly entrenched the name of Silvester as applied to his method. However, all the other methods discussed herein have more appropriate designations: prone pressure (Schafer), hip lift (Emerson), hip roll (Emerson), rocking (Eve), arm lift-scapular pressure (Nielsen), arm lift-prone pressure (Drinker modification of Nielsen), hip lift-prone pressure (Schafer-Emerson-Ivy) and hip roll-prone pressure (Schafer-Emerson-Ivy).

Numerous mechanical devices are now available for the accomplishment of pulmonary ventilation, and most of these are superior to manual methods in situations requiring prolonged or special administration. But the first few minutes are crucial in resuscitation, and reliance on any such devices, which are not usually immediately available, can only lead to failures in attempts to restore respiration. A manual method, or mouth-to-mouth breathing, must always be used until an approved mechanical method is available.

---

[11] Artificial Respiration: Manual and Mechanical Methods, Royal Naval Physiological Laboratory, London, His Majesty's Stationery Office, 1950.

SUMMARY AND CONCLUSIONS

1. Eight methods of manual artificial respiration and the Eve rocking method have been evaluated with respect to the amount of pulmonary ventilation obtained on a series of 11 totally apneic normal adults. The results are compared with those obtained in the same group during passive suspension of respiration and also to those obtained in a previous study by the same operators on nonrigid warm corpses.

2. Results reveal that relative values of the various methods are completely corroboratory, except that the ventilation accomplished on the totally apneic subjects was approximately two times that on the warm corpses, whereas in the subjects with passive suspension of respiration the values were approximately three times those of the corpses. All methods utilizing a "push and pull," thereby causing active inspiration and active expiration, were approximately two times as effective as the "push" or "pull" methods alone, which result in only one half of each cycle being active.

3. It is noted that certain methods are better in specific body types. But, in the final analysis, the hip lift-prone pressure method is generally most efficacious. However, the hip roll-prone pressure method is much easier for sustained operation. The Nielsen (arm lift-scapular pressure) method produces comparable amounts of ventilation but may predispose to injury of the shoulders (although this has not been previously reported).

4. Any and all mechanical devices must always be considered as adjuncts to, and not substitutes for, manual methods, since the first few minutes are crucial for resuscitation and such devices are not usually immediately available

---

Radioactive Isotope Technics.—The nature of the radioactive isotope is such that it differs from its sister only in that it emits radiation and has a different atomic weight. Chemically it is no different But it immediately becomes possible to determine the rate of absorption of various elements, such as iron, sodium, copper and iodine, in extremely small quantities or tracer doses, and to differentiate in the tissue by extremely sensitive means, the element that had been administered to the animal during previous hours, from the amount of that element which was already present. Soon several technics for their use in such studies were developed. There is the so-called in vivo technic, in which a labeled or radioactive material or compound is located and measured in the living animal by means of counters placed over various parts of the body; second, sections of tissues are placed on sensitive x-ray films, and autoradiographs obtained of the site of deposition of the element in that tissue; third, the sample of tissue, urine or blood from a subject or animal is measured in the test tube or crucible under the counter at various intervals after the administration of the radioactive material. It was thus possible to get a dynamic picture of metabolism. In addition to the stable isotopic tracer technic, which was limited in its application to a few elements such as hydrogen, carbon, oxygen or nitrogen, the tracer technic was now extended to all the elements in the periodic table and the sensitivity of the method was much greater than the sensitivity of the methods using heavy or stable isotopes —John Hundale Lawrence, Clinical Use of Radioactive Isotopes, *Bulletin of the New York Academy of Medicine*, October 1950.

Clinical Notes, Suggestions and New Instruments

EPIDEMIC PAROTITIS COMPLICATED BY ACUTE SUPPURATIVE APPENDICITIS

Report of a Case

FRANCES ELIZABETH SCHAAR, M D.
Minneapolis

A few cases of acute appendicitis following the onset of epidemic parotitis have been reported.[1] The majority appear to be well established cases of mumps in which acute appendicitis developed five to seven days after the onset of the initial disease. They are to be differentiated from the cases with postoperative parotitis.[2] The question is periodically raised whether acute appendicitis developing in cases of epidemic parotitis has more than a coincidental relationship.

Reports [1] of five cases of mumps complicated by acute appendicitis have been encountered. In the more recent reports reference to four similar cases,[3] the first of which is reputed to have been described by Simonin in 1903,[3a] has been made. Various writers have reviewed their cases of appendicitis following infectious disease [4]

This case is presented to emphasize a possible, if only a coincidental, complication of mumps. Today a patient with mumps is considered by some to have a systemic disease,[5] and it is possible that the abdominal pain could initially be considered as a probable involvement of the pancreas.

This presentation is made, not to plead a causal relationship between mumps and acute appendicitis, but rather to stress the possible coincidence of the two conditions and to urge early diagnosis of the appendicitis.

REPORT OF CASE

C. S T., a man aged 21, noted swelling of the right parotid gland on March 24, 1948. He was hospitalized on March 26 It was then noted that both parotid glands were tender and swollen. The history and physical examination were otherwise essentially noncontributory. On admission, his temperature was 101.2 F. at 1:45 a. m., but it returned to normal by 7:00 a. m and remained normal for 48 hours. The admission laboratory tests showed a leukocyte count of 4,200, with 57 per cent neutrophils, 37 per cent lymphocytes, 2 per cent eosinophils and 4 per cent monocytes. He had a temperature of 102 F. and a headache on the evening of March 28. The next day he

---

Formerly from the Students' Health Service, University of Minnesota, at present, research fellow in pediatrics, University of Minnesota

1. (*a*) Sandler, A. S, and Finne, B. A: An Unusual Case of Epidemic Mumps Complicated by Gangrenous Appendicitis, Arch. Pediat **49:** 175-177 (March) 1932. (*b*) Benassi, E. Rara complicanza in un caso di parotite epidemica, Riforma med **34:** 796 797 (Aug. 22) 1927 (*c*) Donnelly, J., and Oldham, W. B. Mumps and Appendicitis, Brit M J **1:** 98 99 (Jan. 21) 1933. (*d*) Seelye, W. B.: Epidemic Parotitis Complicated by Acute Appendicitis, Northwest Med. **34:** 44 45 (Feb) 1935 (*e*) Sneierson, H.: Epidemic Parotitis (Mumps) and Acute Appendicitis, Am J. Surg. **47:** 135 138 (Jan) 1940.

2. Charlton, P. H.: Post Operative Parotitis, Ann Surg **93:** 837 843 (April) 1931.

3. (*a*) Simonin (1903), cited by Sandler and Finne [1a]; Donnelly and Oldham [1c]; Seelye,[1d] and Sneierson [1e] (*b*) Jaloquier (1909), cited by Sandler and Finne [1a], Donnelly and Oldham [1c]; Seelye,[1d] and Sneierson [1e] (*c*) Rosenau and Dunlap (1916), cited by Sandler and Finne [1a], Donnelly and Oldham,[1c] and Seelye.[1d] (*d*) Gaudier and Swynghedow (1925), cited by Sandler and Finne [1a]; Seelye,[1d] and Sneierson [1e]

4. Finney, J. M T., Jr.: Analysis of Complications and Deaths Occurring in Appendicitis, Am J. Surg. **20:** 772-799 (June) 1933 Ladd W. E., and Gross, R. E. Abdominal Surgery of Infancy and Childhood Philadelphia, W. B. Saunders Company, 1940, p. 455. Babcock, W W, and others: Principles and Practice of Surgery, Philadelphia, Lea & Febiger, 1944, p 1020. Bowers, W. F, and Shupe, L: Acute Appendicitis. A Sequela of Typhoid Inoculation, Mil Surgeon **90:** 413 418 (April) 1942 Hudson, H W., Jr, and Chamberlain, J. W.: Acute Appendicitis in Childhood: Statistical Study of 848 Cases from Children's Hospital, Boston, J. Pediat **15:** 408 425 (Sept) 1939. Scott, H. W, Jr, and Ware, P. F.: Acute Appendicitis in Chidhood, Arch Surg **50:** 258 268 (May) 1945. Lawrence, K. B, and Waring, G. W., Jr.: Acute Appendicitis Complicating the Acute Infectious Diseases of Childhood, New England J. Med. **241:** 1 6 (July 7) 1949.

5. Wesselhoeft, C: Mumps, Medical Progress, New England J. Med **226:** 530 534 (March 26) 1942

complained of poor appetite and some abdominal discomfort. His temperature rose to 103 F. at 7:00 p. m. The parotid swelling had subsided; the abdomen was soft, and there were no positive findings. The leukocyte count was 6,000, with 49 per cent neutrophils, 42 per cent lymphocytes and 9 per cent monocytes.

His temperature was 100.4 F. at 3:00 a. m. on March 30 and was normal the rest of the day. He had a normal bowel movement. At 4:30 p. m. the abdominal pain returned. Examination revealed right lower quadrant tenderness, especially marked at McBurney's point, and tenderness on the right side by rectal examination. The leukocyte count was 16,700. A diagnosis of acute appendicitis was made, and an appendectomy was performed.

The operative report stated that there was a small amount of slightly cloudy fluid in the vicinity of the appendix, which was pointing down toward the pelvis. The appendix was described as being edematous, swollen and covered with fibrinopurulent exudate. There appeared to be an obstruction in the proximal third, and the base of the appendix was not inflamed.

The pathologist reported that the gross specimen consisted of an appendix 8.5 cm. in length and somewhat distended at the tip, with the distal third of the appendix measuring 1 cm. in diameter while the proximal half measured 0.5 cm. in diameter. The portions of appendix sectioned were the tip, middle and base.

Microscopic study of sections showed the presence of pus in the lumen with ulceration of the mucous membrane in many areas. There was a diffuse infiltration of all coats of the appendical wall by large numbers of neutrophils. There was marked edema of the submucosa, muscularis and serosal coat. The pathologist concluded that the patient had acute diffuse suppurative appendicitis.

The patient's subsequent hospital course was uneventful, and he was discharged April 3.

SUMMARY

A case of acute appendicitis developing on the sixth day following the onset of epidemic parotitis is presented. Reference is made to nine similar cases previously reported.

PERIARTERITIS OCCURRING DURING PROPYLTHIOURACIL THERAPY

ROBERT V. McCORMICK, M.D.[*]
New York

Reactions to propylthiouracil are uncommon but still occur, as evidenced by the reports of several authors, including Bartels.[1] Although periarteritis nodosa due to thiourea has been reported,[2] the following case is the first to show that propylthiouracil may cause fatal generalized periarteritis.

REPORT OF CASE

The patient, M. W., was first seen in the Roosevelt Hospital outpatient clinic in 1940, at which time she weighed 114 pounds (51.7 Kg.), had a blood pressure of 160/90 and a pulse rate of 100 with a regular sinus rhythm. When she was next seen, in March 1948, the blood pressure was 210/100, pulse rate 100, weight 106 pounds (48.1 Kg.), and an enlarged heart with a blowing systolic murmur at the apex was noted. Four months before entry the patient became hypersensitive and irritable after emotional trauma. One month before her entry to the Roosevelt Hospital it was noted in the clinic that her thyroid gland was palpable, and the basal metabolism rate was + 53 per cent. The patient was given 50 mg. of propylthiouracil four times daily; her pulse rate was 110 and her weight was 104 pounds (47.2 Kg.). The patient continued this medication for 10 days and then reduced the dose herself to one-half the recommended amount, because of gastric irritation. After an additional five days she stopped taking the drug altogether.

On the patient's return visit to the clinic fibrillation at a rate of 180 was noted. Immediate admission to the hospital was advised, and soon after the patient had been placed in the ward she was found to have a blood pressure of 130/60; the pulse was grossly irregular and the rate 136. She was an emaciated, elderly woman who appeared chronically ill, and had a coarse tremor of the hands. The eyes appeared to protrude, but this had been characteristic of the patient for 20 years prior to examination. The thyroid gland was barely palpable. The patient had a few rales of congestive failure at both lung bases. Examination of the heart revealed moderate enlargement, a blowing systolic murmur and auricular fibrillation. The patient had no evidence of peripheral edema, and reflexes were normal; there were no Babinski reflexes. The laboratory data revealed the patient had 12 Gm. of hemoglobin and 4,400 white blood cells, with 76 per cent polymorphonuclear neutrophils and 22 per cent lymphocytes. The blood cholesterol was 172 mg. The serologic reactions of the blood to the Kline exclusion test and Mazzini test were negative.

Bed rest was prescribed, and the patient was given digitalis and sedatives for the first few days in the hospital in an attempt at evaluation of the true degree of hyperthyroidism and cardiac failure. On the third hospital day the basal metabolic rate was + 25 per cent. Because of this pronounced drop in the basal metabolic rate (three basal metabolic rates in the clinic at the time of onset of therapy were + 53, + 59 and + 55 per cent) and because the history and signs and symptoms were not altogether typical of classic hyperthyroidism, no specific therapy was employed. Nine days later the basal metabolic rate was + 12 per cent. This did not persist, and further basal metabolic tests revealed a level of + 31 per cent. It was felt that the patient's age and condition made her a poor operative risk, so that continued medical therapy was indicated; she was again given propylthiouracil. The temperature of the patient was normal before the administration of propylthiouracil (50 mg. four times daily) but within the following 24 hours rose to 103.4 F. Diarrhea also developed, but no other abnormal signs were present. Approximately 36 hours after the administration of the drug the patient became incontinent and unable to care for herself. She had difficulty forming words, became irrational, showed a left facial paresis with weakness and had a Babinski reflex on the left side. As it was felt at this time that the patient was suffering from a cerebral vascular accident, a spinal tap was done, which revealed normal pressure, crystal clear fluid, no white cells, a protein level of 16 mg. per 100 cc., a colloidal gold reaction of 1111100000 and a negative Wassermann reaction. At that time the patient had a white blood cell count of 7,150, with 90 per cent polymorphonuclear neutrophils, 9 per cent lymphocytes and 1 per cent monocytes. On the fifth day of this episode it was noted that all the symptoms of fever, diarrhea and left hemiparesis had become apparent within 24 hours after the administration of the propylthiouracil; therefore treatment with this drug was stopped. Within 24 hours the patient's temperature was normal, the diarrhea had stopped, the Babinski reflex had disappeared, and she appeared greatly improved and became rational.

It was felt that the patient was sensitive to this drug; she was therefore allowed to recuperate for one week, during which time she had no symptoms and had a normal temperature. A test dose of 50 mg. of the drug was then given. Within 12 hours her temperature rose to 101.2 F., diarrhea developed and she had pronounced weakness and mental confusion. These symptoms disappeared after 24 hours had elapsed, and the patient continued asymptomatic until the time of discharge. Medication prescribed at this time consisted of sedatives and digitalis. Because she was a poor operative risk, her hyperthyroidism was not severe enough to warrant operation, and because her severe reaction to propylthiouracil had contraindicated that drug, it was hoped the patient's condition could be controlled with iodine on an outpatient basis.

The patient was followed in the clinic for two months, during which time she was asymptomatic. She was then inadvertently again given propylthiouracil, 50 mg. four times daily, six days before the second admission to the hospital. She had taken a total of 1,150 mg. of the drug before she was brought to the hospital in an unconscious condition, which had its onset two hours before admission. At this time the patient had a blood pressure of 165/82 with a pulse rate of 128, with regular sinus rhythm. The patient had evidence of a left cerebral vascular accident, left facial weakness and a left Babinski reflex, but a spinal tap revealed no abnormalities. Supportive therapy was given, but the patient remained in this condition without appreciable change and died six days after admission without having gained consciousness.

---

[*] Resident in Medicine, First Medical Service, Roosevelt Hospital.

[1] Bartels, E. C.: Agranulocytosis During Prophylthiouracil Therapy, Am. J. Med. 5: 48-52 (July) 1948.

[2] Gibson, P. C., and Quinlan, J. T.: Periarteritis Nodosa in Thiourea Therapy, Lancet 2: 108-110 (July 28) 1945.

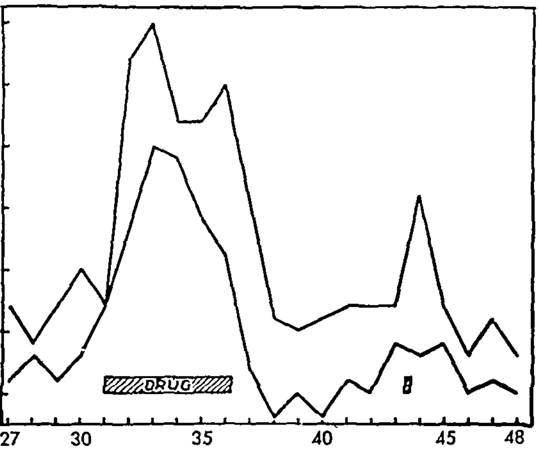


Fig. 1.—*Minimum and maximum temperatures during the administration* of propylthiouracil. The therapeutic dose was 200 mg. every 24 hours. The test dose was 50 mg. The ordinate represents rectal temperature (Fahrenheit) and the abscissa indicates day of hospitalization.

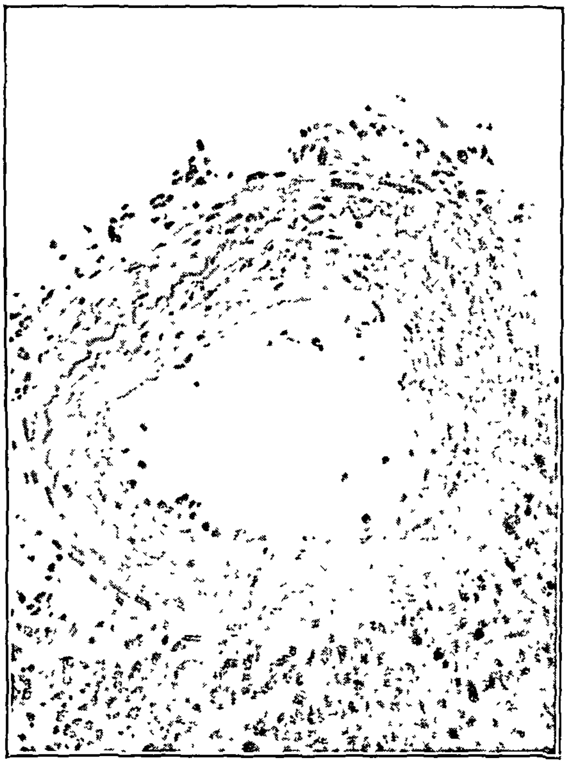


Fig. 2.—Section of the liver (× 500) showing the wall of a small artery with cellular infiltration, hyalin necrosis and edema.

Postmortem examination revealed that the brain weighed 1,220 Gm. A recent thrombus occluded the lumen of the right middle cerebral artery. The thrombus was about 3 cm. in length. Further gross examination of the brain revealed no abnormality. The heart weighed 285 Gm., and the mitral valve measured 8 cm. in circumference; several of the chorda tendineae were thick and retracted. The free edge of the anterior leaflet was greatly thickened and calcified, and bone formation in one area was noted. Multiple sections of the myocardium revealed no area of infarction. The thyroid gland weighed 20 Gm. and was formed of small nodules, which revealed cystic degeneration on sections.

Dr. W. W. Brandes, pathologist of the Roosevelt Hospital, reported that microscopic examination of the organs revealed diffuse periarteritis. In the liver there was pronounced arteriolosclerosis, and the walls of the arterioles were swollen and edematous, with areas which were broken and granular in appearance. Hyalin necrosis of both arterioles and small capillaries, infiltration with lymphocytes, neutrophils and a few eosinophils, terminal passive hyperemia and fatty metamorphosis with areas of vacuolization of the liver cells were observed. There was pronounced nephrosclerosis, with changes similar to those noted in the arterioles of the liver, in the slides of the kidney. The thyroid sections revealed fetal adenomas with colloid involution and many areas of hyperplasia and involution. Sections of the brain revealed edema and pericapillary hemorrhages; a few of the capillaries were distended with leukocytes. Similar vascular changes were noted in the pancreas. The heart showed a mild accumulation of lymphocytes, an occasional neutrophil and some eosinophils around some of the smaller vessels. The walls of some of these vessels were thickened, and the substance was granular, obliterating to some extent the normal architecture. There were no typical lesions of rheumatic involvement.

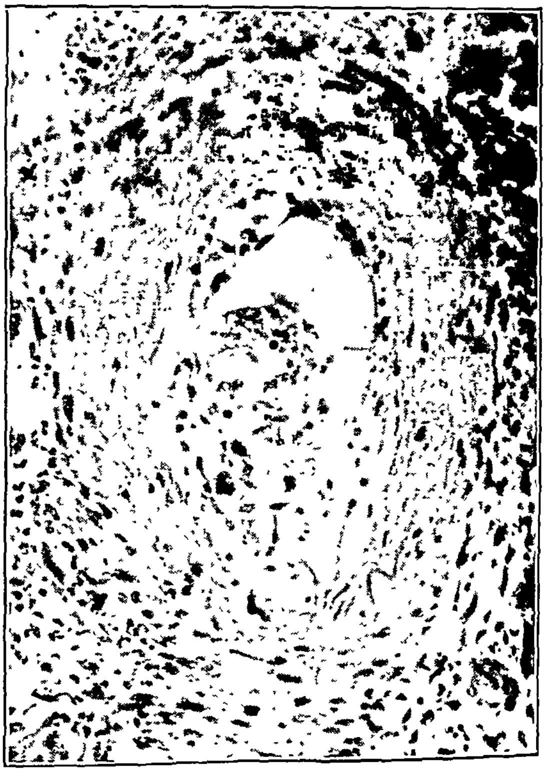


Fig. 3.—Section of a small artery of the kidney (× 500) showing pronounced edema, necrosis and cellular infiltration.

SUMMARY

A fatal case of a diffuse periarteritis due to propylthiouracil reaction, manifested by signs of a left hemiplegia, nausea, vomiting, fever, mental confusion and a normal white blood cell count, is reported.

428 West Fifty-Ninth Street.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

HOWARD A. CARTER, *Secretary.*

ARTIFICIAL RESPIRATION

A New Method and a Comparative Study of Different Methods in Adults

ARCHER S. GORDON, M.D.
DAVID C. FAINER, M.D.
and
A. C. IVY, M.D.
Chicago

Studies on the efficacy of the various methods of artificial respiration abound in the literature. However, a comparative study of a number of current methods by the same group of observers, using a significant number of nonrigid human corpses, is not available.

CHOICE OF SUBJECTS

Four types of subjects have been used for the study of the efficiency of various methods of artificial respiration: (*a*) human corpses prior to the occurrence of rigor mortis, (*b*) normal passive human subjects with "voluntarily suspended respirations," (*c*) deeply anesthetized and/or curarized animals, (*d*) human subjects deeply anesthetized or curarized, or apneic for some other reason. There have been investigations in which one or more of these methods have been used.[1] However, the results of different investigators and methods vary widely; the authors fail to consider all currently advocated manual and mechanical methods and usually report only a few cases.

Laboratory animals were not used by us for this study because the anatomy of a dog or that of a monkey renders results obtained equivocal. Since we desired to perform relatively many tests, the risks, though remote, associated with the deep anesthetization and/or curarization of otherwise normal human volunteers deterred us from using this type of subject. We decided to use subjects who were instructed to "voluntarily suspend their respiration" in some tests but not in many, because, as is realized by many investigators in this field, the results so obtained are equivocal in that such a subject is not comparable to a person requiring artificial respiration.[2] Therefore, for most of our tests we used recently deceased, warm corpses, prior to the onset of rigor mortis. We believe, as suggested by Eve,[3] that such a subject is most comparable to a person requiring artificial respiration, except perhaps the deeply anesthetized apneic person.

METHODS OF ARTIFICIAL RESPIRATION STUDIED

Readers interested in the history of the development of artificial respiration from early ages to the present day can find many excellent references[4] (fig. 1). The methods are usually classified as manual or mechanical. The term mechanical indicates that some sort of apparatus or device, even though only a board or stretcher, is used. Of the many manual methods proposed, only those in use today or believed to be efficacious were considered in this survey.

Manual Methods.—Silvester Method[5] (1858): The patient is placed in the supine position with the arms at the sides and forearms and hands on the lower part of the thorax. The arms are raised and straightened and extended over the subject's head to effect active inspiration and then returned to their original position, making pressure on the thorax to produce active expiration. The method has the disadvantage of frequent occlusion of the airway by the tongue's falling backward into the pharynx. Ribs have been fractured by the exertion of too much pressure[6]

Schafer (Prone Pressure) Method[7] (1903): The patient is placed in the prone position with arms extended and face to one side. Pressure is exerted with the hands close together on the lower portion of the thorax. The pressure on the thorax causes active expiration, and inspiration occurs passively as the result of elastic recoil. The maneuver requires little muscular exertion by the operator. This is the most widely used method because of its simplicity.

Nielsen Method[8] (1932): The patient is placed in the prone position with his hands under his forehead. Several slaps are administered between the shoulder blades to force the tongue out of the pharynx. The elbows are grasped and raised to cause active inspiration; they are then released, and pressure is exerted over both scapulas to produce active expiration. Undue pressure may fracture the ribs.[9]

Schafer-Nielsen-Drinker (Modification of Nielsen) Method[10] (1935): The patient is placed in the Nielsen position. One operator performs the prone pressure procedure of the Schafer method while another operator alternately raises the elbows or arms. Drinker thus eliminates the pressure exerted over the scapular area in the Nielsen method, which he believes may cause fractures of the ribs. At the same time it retains the well

---

Assisted in part by a grant from the American Red Cross

From the Department of Clinical Science, University of Illinois College of Medicine, Chicago

[1] (*a*) Bruns, O.: Über Wiederbelebung durch kunstilche, Atmung, Klin Wchnschr. **6**: 1548 (Aug 13) 1927 (*b*) Eve F C Activation of the Inert Diaphragm by a Gravity Method, Lancet **2**: 995 (Nov 5) 1932. (*c*) Asmussen, E.: Personal communication to the authors (*d*) Comroe, J H, Jr, and Dripps, R D Artificial Respiration (Including Comparison of Schafer and Eve Methods), J. A M A **130**: 381 (Feb 16) 1946 (*e*) Waters, R M, and Bennett, J. H Artificial Respiration Comparison of Manual Maneuvers, Anesth & Analg **15**: 151 (May June) 1936 (*f*) Mijnlieff, C J: The Best Method of Manual Artificial Respiration and How to Apply It, Lancet **2**: 149 (July 20) 1935 (*g*) King, B G.: A Comparison of Pulmonary Ventilation in Three Methods of Artificial Respiration, Indust Hyg & Toxicol **20**: 576 (Nov) 1938 (*h*) Hooker, D. R; Kouwenhoven, W B, and York J A Volume of Air Moved by Artificial Respiration in Anesthetized Men, Am J Physiol **137**: 649 (Nov) 1942 (*i*) Gibbens, G. H Artificial Respiration at Sea, Brit M J. **2**: 751 (Dec 26) 1942 (*j*) Crowden, G P Artificial Respiration [illegible] il) 1938 (*k*) Cordier, G G.: Method of [illegible] J **2**: 381 (Sept 25) 1943 (*l*) MacIntosh, [illegible] Brit M J **2**: 493 (Oct 16) 1943 (*m*) [illegible] C Physiological Investigation of Rocking Method, Lancet **2**: 740 (Sept 30) 1933 (*n*) Eve, F. C: Artificial Respiration Explained, Baltimore, Williams & Wilkins Company, 1946 (*o*) Killick, E M.; Leeds, M. B.; Sowell, E M, and Crowden, G P: Principles of Artificial Respiration in First Aid, Lancet **2**: 897 (Oct 21) 1939 (*p*) Mijnlieff, C. J., Waterman, L Respiration artificielle et circulation artificielle du sang, J. de physiol et de path gen **36**: 1059 (Dec) 1938 (*q*) Barach, A. L Physiologic Therapy in Respiratory Diseases, ed. 2, J. B. Lippincott Company, 1948, p 1 (*r*) Johnson, F. S; Hawkins, J. A, and Yarbrough, O D An Evaluation of a Modified Schaefer Method of Artificial Respiration, U. S Nav. M Bull **35**: 60 (Jan) 1937.

[2] (*a*) Cordier.[1k] (*b*) Pask, E. A: Efficiency of Methods of Artificial Respiration, Medical Research Council, Royal Naval Personnel Research Committee, London, His Majesty's Stationery Office 1946

[3] Eve, F. C: Complacency in Resuscitation of the Drowned, Brit M. J. **1**: 535 (May) 1943.

[4] Fisher, H E: Resuscitation, in Glasser, O: Medical Physics, Chicago, The Year Book Publishers, Inc, 1944, vol 1, p 1241; 1950, vol 2, p 876 Flagg, P J.. The Art of Resuscitation, New York, Reinhold Publishing Corporation, 1944 Fisher, H E: The Evolution of Resuscitation, Indust. Med **11**: 430 (Sept) 1942 Resuscitation, open letter by Dr Yandell Henderson, report of Council on Physical Therapy, J A M A **112**: 1946 (May 13) 1939 Silvia, C. E: Manual of Lifesaving and Water Safety Instruction, Y. M C A Aquatic Library, New York, Association Press, 1949, new series, vol 6, p 133

[5] Silvester, H R: A New Method of Resuscitating Still Born Children and of Restoring Persons Apparently Dead or Drowned, Brit. M. J. **2**: 576 (July 17) 1858

[6] Schafer, E A: Artificial Respiration in Man, in Harvey Lectures, 1907 1908, Philadelphia, J. B Lippincott Company, 1909, p 223

[7] Schafer.[6] Artificial Respiration, in American Red Cross First Aid Text Book, American National Red Cross, Philadelphia, The Blakiston Company, 1940, p 108 Burke, T. Cheating Death Through Resuscitation, Nat Safety News **32**: 20 (July) 1935. Schafer, E A: Artificial Respiration in Its Physiologic Aspect, J A M. A **51**: 801 (Sept 5) 1908

[8] Nielsen, H.: A Method of Resuscitation, Ugesk f Laeger **94**: 1201 (Dec 15) 1932 Lindhard, J.: Artificial Respiration According to Nielsen Method, Ugesk f laeger **96**: 67 (Jan. 18) 1934 Gentles, H W: A New Method of Artificial Respiration, Nat Safety News **32**: 34 (Aug) 1935 MacLachlan, W: The Holger Nielsen Method of Resuscitation, Nat Safety News **32**: 52 (Sept) 1935. Manual of Artificial Respiration, Danish Red Cross, Holger-Nielsen Committee, Hellerup, Otto Teller, 1947, p 5.

[9] Drinker, C K, and Shaw, L A.: A Modification of the Nielsen Method of Artificial Respiration, J. Indust Hyg **17**: 243 (Nov.) 1935.

[10] King, B G: A Comparison of Pulmonary Ventilation in Three Methods of Artificial Respiration, Indust Hyg & Toxicol **20**: 576 (Nov.) 1938. Drinker, C. K, and Shaw, L. A.: A Modification of the Nielsen Method of Artificial Respiration, J. Indust Hyg **17**: 243 (Nov.) 1935

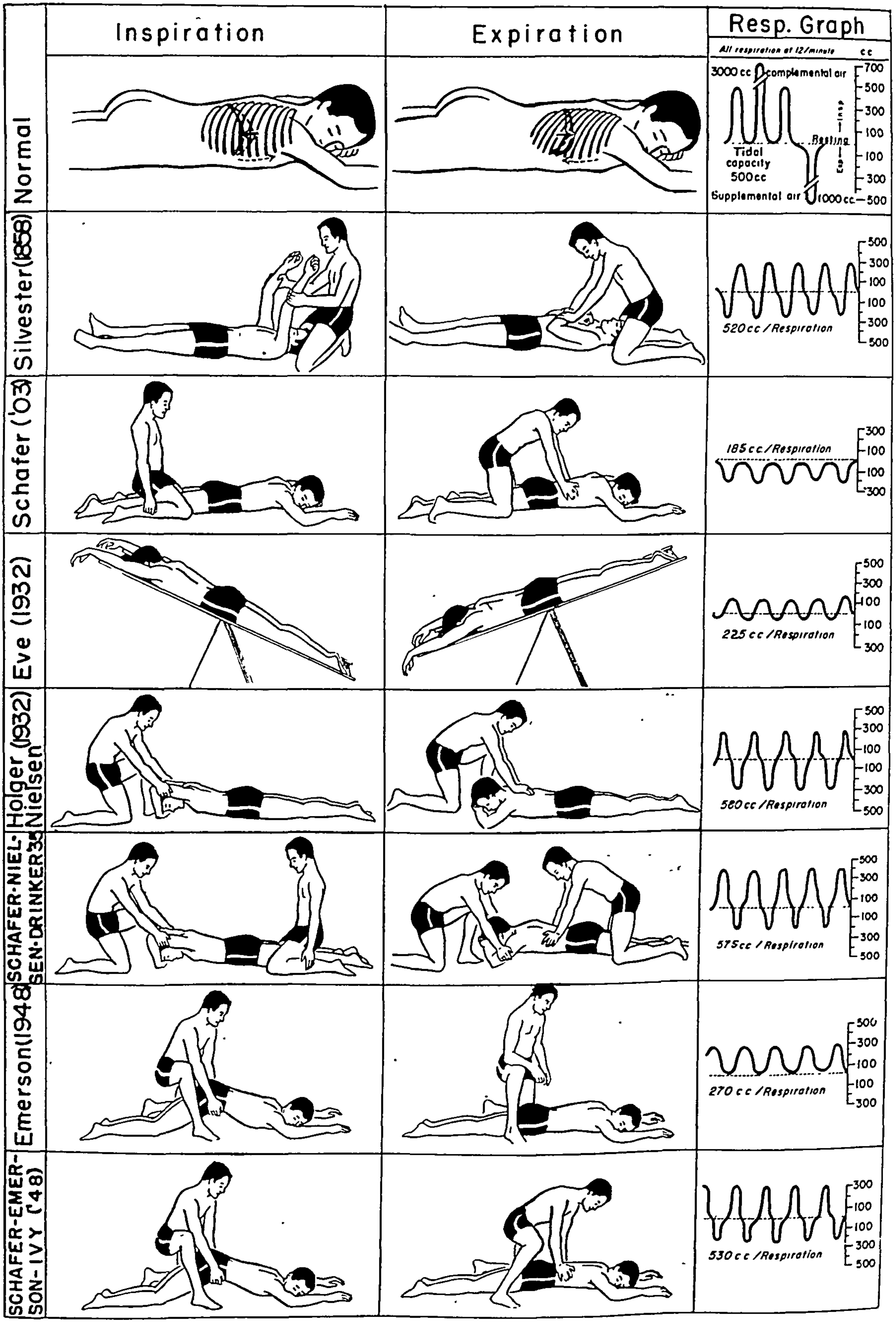


Fig. 1.—Inspiratory and expiratory phases of normal respiration, Eve rocking method and manual methods of artificial respiration with pneumographs produced by each.

known features of the Schafer method. Drinker was the first in this country to suggest this modification, although he was preceded a few months by Héderer in France.[11]

Emerson Method[12] (1948): Mr. John H. Emerson has proposed that the hips be lifted and lowered with the patient in the position of the prone pressure method. Raising the hips several inches causes active inspiration because of descent of the inert diaphragm and hyperextension of the spine (as verified by us fluoroscopically and radiographically). Lowering of the hips results in passive expiration. Mechanical devices are also available for executing this method.[13]

Schafer-Emerson-Ivy (Hip Lift-Prone Pressure) Method: With the patient prone, this method alternates the lifting and lowering of the hips (as in the Emerson method) with pressure exerted on the lower part of the thorax (as in the Schafer method). Early muscular exhaustion may be avoided by the use of a piece of cloth, a shirt or a belt, passed beneath the hips, so that the lifting may be conducted by one or two persons while another carries on the prone pressure maneuver. Thompson[14] in 1935 reported the use of this hip lift-prone pressure method in an 18 year old victim of acute paralytic poliomyelitis. The victim was gasping, cyanotic and unconscious when artificial respiration was begun. The Schafer method failed to produce adequate ventilation, and the paralysis reduced elastic recoil of the chest so that it remained in relative expiration. Hip Life-Prone Pressure resuscitation was used for eight hours and kept the patient semiconscious and ventilated until a respirator was secured. The victim recovered.

Hip Roll-Prone Pressure Method: Subsequent to the completion of the major portion of this study, a modification of the hip-lifting technic was suggested. In order to reduce the fatigue incident to lifting the hips, it appeared that elevation of only one hip would produce active inspiration with less effort. In effect the victim is grasped at the distant hip and "rolled" onto the rescuer's knee. This can be accomplished alone or in conjunction with Schafer prone pressure.

Mechanical Methods.—Eve (Rocking) Method[15] (1932): The patient is placed in the prone position and is rocked in a head-down and then feet-down position. Unlike the manual methods, the rocking method depends solely on the up and down motion of the diaphragm produced by the movements of the abdominal viscera during rocking.

Automatic Intermittent Positive Pressure: This method expands the chest by intermittently introducing air or a gas mixture under pressure (up to 20 cm. of water or 14.7 mm. of mercury in this work) into the upper respiratory passage via a face mask. A Burns valve[16] was used for this purpose by us, though there are other good positive pressure devices.

Alternating Negative and Positive Pressure (Suck and Blow): We used several devices that provided a positive pressure of + 14 mm. of mercury and a negative pressure of approximately − 9 mm. of mercury via a face mask.

METHODS FOR RECORDING VOLUME OF PULMONARY VENTILATION

The efficacy of an acceptable method for artificial respiration depends first and foremost on the speed with which it may be applied to the patient after he is found; second, on the relative adequacy of the volume of pulmonary ventilation it produces; third, on whether it has a beneficial, indifferent or harmful effect on cardiac output and cerebral blood flow; fourth, whether it tends to open or close the airways; fifth, on its ease of application; sixth, whether it predisposes to regurgitation and aspiration of stomach contents, and seventh, on whether it is harmful to the lungs or exposes to dislocation of the shoulder or fracture of the ribs. In the major portion of this study, we were interested in the second factor, namely, the amount of pulmonary ventilation really obtained by the various methods.

With the manual methods and the rocking method of Eve, the minute volume of air exchange was measured by having the corpse inspire and expire into a carefully balanced graphically recording calibrated spirometer. With the mechanical methods, a very sensitive and accurate flow meter was used to record the volume of air exchange. The volume recorded by the spirometer was cross checked through the flow meter. However, the small inertia factor in the latter may have resulted in slight reduction of the mechanical values obtained. The dial of the flow meter was modified so that a kymographic record could be made of the amount of air exchanged with each respiratory movement.

For the unequivocal comparison of the amount of pulmonary ventilation produced by the different methods, we kept the airway open by introducing and using a McGill endotracheal tube with an inflatable cuff. This yielded an air-tight fit, reliable results and an ideal airway.

We also used during this study an ordinary anesthesia mask, which was attached to the recording devices. In some cases leakage occurred around the mask, and it was not easy to keep the chin in the mask during the various maneuvers; the results on the volume of respiration were therefore inaccurate. Subsequently, we used a full face gas mask with an inner rubber flap to insure against leakage with positive pressure. This mask supported the chin, kept the mandible elevated and prevented the tongue from falling into the oropharynx. Under the practical conditions of resuscitation one is not concerned with a small amount of leakage, but we were anxious to prevent leakage because we were measuring the minute volume of pulmonary ventilation.

To simulate natural, practical conditions as closely as possible and to allow the mandible free movement, an additional method was used in which the nostrils were closed with a clip and the lips with a mouth piece. The mouth piece was devised with a central opening 1 inch (2.5 cm.) in diameter surrounded by a gingival and external flange which could be tightened on the lips, yiending an air-tight system when the central opening was attached to the spirometer or flow meter.

GENERAL PROCEDURE

A day and night call system was arranged with the hospital to provide prompt notice of a preterminal patient. All cases of known preterminal pulmonary pathology were excluded. Otherwise the warm corpses represented a random sampling of the adult male and female deaths at the hospital.

We decided to make all tests within one hour after cessation of the heart beat. However, it was found that in certain corpses rigor mortis started to develop within an hour; the data on these cases were excluded. It was also found that in some corpses rigor mortis did not develop for much longer than an hour and hence could be used for study for a longer period. However, the data we report for comparison includes only data that were obtained within 90 minutes, mostly within 60 minutes, after death, and considerably before the onset of rigor mortis. Calls were answered for over 200 cases, but the data for only 109 are submitted in this report. The others were eliminated for various reasons, such as too rapid onset of rigor mortis, tuberculosis, arthritis, deformities and occlusion of the tracheobroncheal tree by dense mucus, detritus or tumors.

It was not possible, of course, to rule out corpses with some pulmonary edema, passive congestion, bronchopneumonia and collections of mucous secretion. Such conditions in a corpse probably decreased the volume of pulmonary ventilation as compared with a corpse with completely clear lungs, but each corpse was exposed to an entire group of manual or mechanical methods in a regular order and under the same conditions; hence the comparative values are unequivocal. (Indeed, the results obtained on corpses with mild degrees of lung pathology might be more applicable to drowned persons). Within a given series each manual or mechanical method of artificial respiration was used on each corpse. The various methods were kept in a definite sequence and rotated according to a fixed schedule, so that each method was applied in turn after death an equal number of times.

---

[11] Héderer, C.: Sur une nouvelle manoeuvre de respiration artificielle combinée avec la méthode de Schaefer pour en corriger les défauts et en augmenter la valeur physiologique, Bull. Acad. de méd. **113:** 632 (May 14) 1935. Technique de la méthode de Schaefer avec manoeuvre inspiratoire de Héderer, ibid. **114:** 178 (July 30) 1935. Sur une nouvelle manoeuvre de respiration artificielle combinée avec la méthode de Schaefer pour en corriger les défauts et en augmenter la valeur physiologique, Arch. de méd. et pharm. nav. **125:** 371 (July-Sept.) 1935.

[12] Emerson, J. H.: A Manual Method of Artificial Respiration by Lifting the Hips, Cambridge, Mass., The Author, 1948 and 1949.

[13] [illegible] J. ..., and Sarnoff, S.: Physiologic Principles in [illegible] Failure, M. Clin. North America **34:** 1335 (Sept.) 1950.

[14] Thompson, T. C.: Method of Artificial Respiration Especially Useful for Paralyzed Patients, J. A. M. A. **104:** 307 (Jan. 26) 1935.

[15] Footnotes 1 b, 1 m and 1 n.

[16] Burns, H. L.: Pneumatic Balance Resuscitator, Air Surgeon's Bull. **2:** 306 (Sept.) 1945.

RESULTS

Comparison of Manual Methods and the Rocking Method.—Airway with Endotracheal Intubation: Table 1 shows that the various manual methods and the rocking method of Eve may be divided into two groups. One group yields approximately twice as much ventilation as the other.

The manual methods which are designed to assist actively both inspiration and expiration produce twice as much ventilation as those that do not. In other words, it is not enough to compress actively the chest to get air out; it is also necessary to expand actively the chest to get air in. The double activity may be referred to as "push and pull." This point is shown clearly in the pneumograms (fig. 1) made of the respiratory cycle from the spirometer records. Lifting the hips, as in the Emerson method, causes an active inspiration and a passive expiration of approximately the same amount. In the Schafer prone pressure method the converse is true, since the active expiration is followed by a passive inspiration of approximately the same volume. The "push and pull" methods, such as the hip lift-prone pressure method of Schafer, Emerson and Ivy, consist of the cyclic sequence of (*a*) active inspiration, (*b*) passive expiration, (*c*) active expiration and (*d*) passive inspiration, and approximately twice as much ventilation occurs as with a maneuver which includes only half of the sequence.

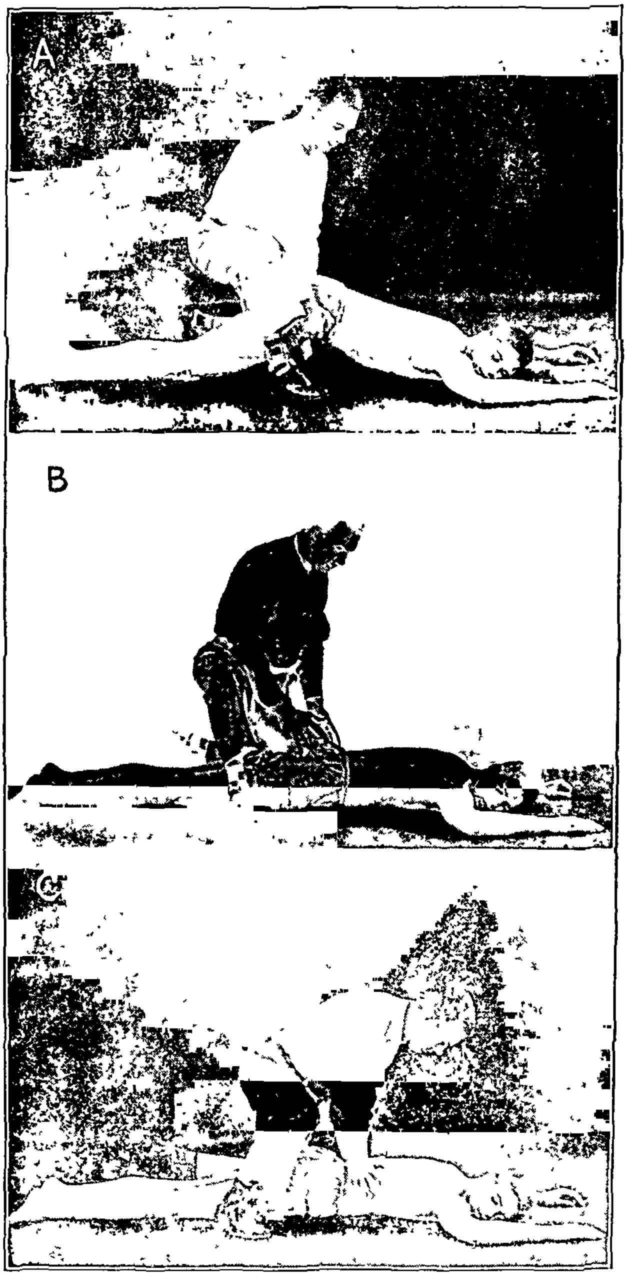


Fig. 2.—Schafer Emerson-Ivy hip lift-prone pressure method from optimum Schafer position. *A*, elevation of hips to cause active inspiration. *B*, replacing hips after active inspiration and preparing to execute prone pressure. *C*, prone pressure over floating ribs to cause active expiration.

The values in table 1 may be compared with the values for tidal air and minute volume for the average, healthy, normal, living adult subject, which are 500 cc. and 6,000 cc. per minute at rest,[17] respectively. The air exchange of 185 cc. obtained by the Schafer method is adequate for the minimal tidal air for resuscitation proposed by Swann,[18] namely, 2.5 cc. per kilogram of body weight, or 175 cc. for a person weighing 70 Kg., but a much larger tidal air is preferable.

Since the air exchange obtained with the Eve method depends on the excursion of the diaphragm which is dependent on the range of movement of the viscera produced by gravity, the air exchange during one respiratory cycle will depend on the arc through which the patient is rocked.[19] Five warm corpses were used to check this supposition, since it has been proposed by some that rocking should be first through an arc of 50 degrees, then 40 degrees and, finally, maintained at an arc of 30 degrees. Rocking at a rate of 12 times per minute, we obtained the following minute volumes of air exchange: at an arc of 30 degrees, 115 cc., or a minute volume of 1,380 cc.; at 40 degrees, 210 cc., or a minute volume of 2,520 cc., and at 50 degrees, 300 cc, or a minute volume of 3,600 cc. We confirmed the observations of Pask[2b] and Gibbens[11] also, in that we found that the "jerk," instead of a smooth change, at the end of each "swing" increased the ventilation slightly as might be expected.

TABLE 1.—*Results Obtained with Manual Methods and the Rocking Method in Twenty-Six Warm Human Corpses (Endotracheal Airway)*

	Single Respiratory Cycle			
Procedure	Average, Cc.	Range, Cc.	Methods Compared, % *	Minute Volume, Cc., Rate 12/Min
Prone rocking (Eve) †	225	50-572	42	2,700
Hip lift-prone pressure (Emerson) ‡	270	57-605	51	3,240
Hip lift-prone pressure (Schafer)	185	27-471	35	2,220
Hip lift-prone pressure (Schafer-Emerson-Ivy)	530	100-1,313	100	6,360
Arm lift-scapular pressure (Nielsen)	*580*	*180-1,250*	*109*	*6,960*
Arm lift-prone pressure (Schafer-Nielsen-Drinker)	575	100-1,371	108	6,900
Supine-arm lift-chest pressure (Silvester)	520	150-1,166	98	6,240

* The hip lift-prone pressure method is equated as 100 per cent.
† Rocked through an arc of 40 degrees 12 times per minute; at 50 degrees the figure is 300 cc., or a minute volume of 3,600 cc. Thus for the Eve method to produce an exchange equal to that of the "push and pull" methods it would theoretically have to be conducted at a rate of 20 per minute; but as the rate is increased appreciably above 12 per minute the air exchange for a single cycle decreases.
‡ Hips elevated 3 to 4 inches 12 times per minute.

TABLE 2.—*Hip Lift and Roll Technics; Comparative Results on Eight Warm Corpses (Endotracheal Airway)*

	Single Respiratory Cycle			
Procedure	Average, Cc.	Range, Cc.	Methods Compared, % *	Minute Volume, Cc., Rate 12/Min.
Hip lift †	330	171-428	47	3,960
Hip roll	155	71-242	22	1,860
Hip lift-prone pressure	704	476-1,042	100	8,448
Hip roll-prone pressure	537	371-799	76	6,444
Prone pressure	300	71-528	43	3,600

* The hip lift-prone pressure method is equated as 100 per cent
† Hips elevated 3 to 4 inches, 12 times per minute.

---

17. Best, C. H., and Taylor, W. B.: Physiological Basis of Medical Practice: A Text in Applied Physiology, ed. 5, Baltimore, Williams & Wilkins Company, 1950, p. 361.

18. Swann, H. G.: *Studies in Resuscitation*, Mem. Rep. Aero. M. Lab., MCREXD—696—79G, April 28, 1949, p. 27.

19. Cowan, S. L.: Artificial Respiration with Special Reference to the Rocking Stretcher Method, and Trials with a "Riley Rocking Stretcher," Medical Research Council, Royal Naval Personnel Research Committee, London, His Majesty's Stationery Office, 1949.

In studying the Eve method with respect to the rate of rocking on the volume of each cycle and on the minute volume of air exchange, we found that rocking at a rate of eight times per minute increased the volume of each cycle but not the minute volume as compared with 12 times per minute. When the rate was increased to 18 times per minute, the volume of each cycle was decreased so that the minute volume remained the same or was only slightly increased. At 30 times per minute the volume of each cycle was decidedly reduced and the diaphragm tended to remain in a state of sustained inspiration. However, to graph or mathematically express the relation between the rate of rocking plus the size of the arc on the volume of air exchange per cycle and per minute would require more study than we thought the problem warranted. The optimum is approximately 12 to 15 per minute through an arc of 50 degrees.

The rocking method of Eve was also studied with the same warm corpse in both the prone and supine positions.[19] Nine cases were used, and the exchange in the prone averaged 225 cc. and in the supine 200 cc. This was done, of course, with the endotracheal airway and would not hold for the supine position if another airway were used, because of occlusion with the tongue or secretions.

Table 3.—*Results with Various Manual Methods and the Rocking Method in Eight Warm Human Corpses (Full Face Mask, Mandible Fixed)*

	Single Respiratory Cycle			
Procedure	Average, Cc.	Range, Cc.	Methods Compared, % *	Minute Volume, Cc., Rate 12/Min.
Prone rocking †	216	76-352	41	2,592
Hip lift ‡	265	138-500	51	3,180
Prone pressure	164	28-557	31	1,968
Hip lift-prone pressure	520	205-1,199	100	6,240
Arm lift-prone pressure	549	228-1,000	105	6,588
Supine-arm lift-chest pressure	514	342-885	99	6,168

* The hip lift-prone pressure method is equated as 100 per cent.
† Rocked through arc of 40 degrees 12 times per minute.
‡ Hips elevated 3 to 4 inches 12 times per minute

Table 4.—*Results with Various Manual Methods and the Rocking Method in Eight Warm Human Corpses (Nostrils Closed, Mouth Piece, Freely Movable Tongue and Mandible)*

	Single Respiratory Cycle				
Procedure	Average, Cc.*	Range, Cc *	Methods Compared, % †	Minute Volume, Cc., Rate 12/Min.	Failures, %
Prone rocking ‡	183	57-261	37	2,196	0
Hip lift §	221	52-385	44*	2,652	25
Prone pressure	247	157-414	50*	2,964	25
Hip lift-prone pressure	492	85-971	100	5,904	0
Arm lift-prone pressure	572	395-828	116	6,864	0
Supine-arm lift-chest pressure	498	227-550	101*	5,976	50

* Average and range do not include the failures to obtain air exchange.
† Hip lift-prone pressure method equated as 100 per cent.
‡ Rocked through an arc of 40 degrees 12 times per minute.
§ Hips elevated 3 to 4 inches 12 times per minute

With the Emerson method, the effect of raising the hips to varying degrees was studied. It was thought that a small elevation might cause only a negligible inspiration, whereas excessive elevation, aside from being exhausting, might cause the abdominal viscera to slide cephalad and cause active expiration by pressure on the diaphragm as in the rocking method. Neither of these suppositions was verified by the results.

In eight corpses it was found that elevation of the hips of 2 inches (5 cm.) yielded an average inspiration of 217 cc., and of 6 inches (15 cm.), 320 cc.; when the hips were raised to make a 45 degree angle between the body and the horizontal, the inspiration amounted to 400 cc.; at 80 degrees the figure was 470 cc.

In a subsequent series on eight warm corpses in which the Emerson hip lift was compared with the hip roll method, the former produced twice as great a tidal volume as the latter (table 2). However, combination of the roll with the Schafer prone pressure method yielded 76 per cent of the ventilation accomplished by the hip lift combined with the Schafer and almost twice as much as the Schafer method alone.

Natural Airway with Full Face Mask: The full face mask was used on eight corpses, with results shown in table 3. The results closely conform to those obtained with an endotracheal airway (see table 1). In one of the eight corpses, only three of the six methods tried produced any air exchange, namely, the hip lift, the hip lift-prone pressure and the rocking methods. No explanation could be found for the failure of the other methods in this case.

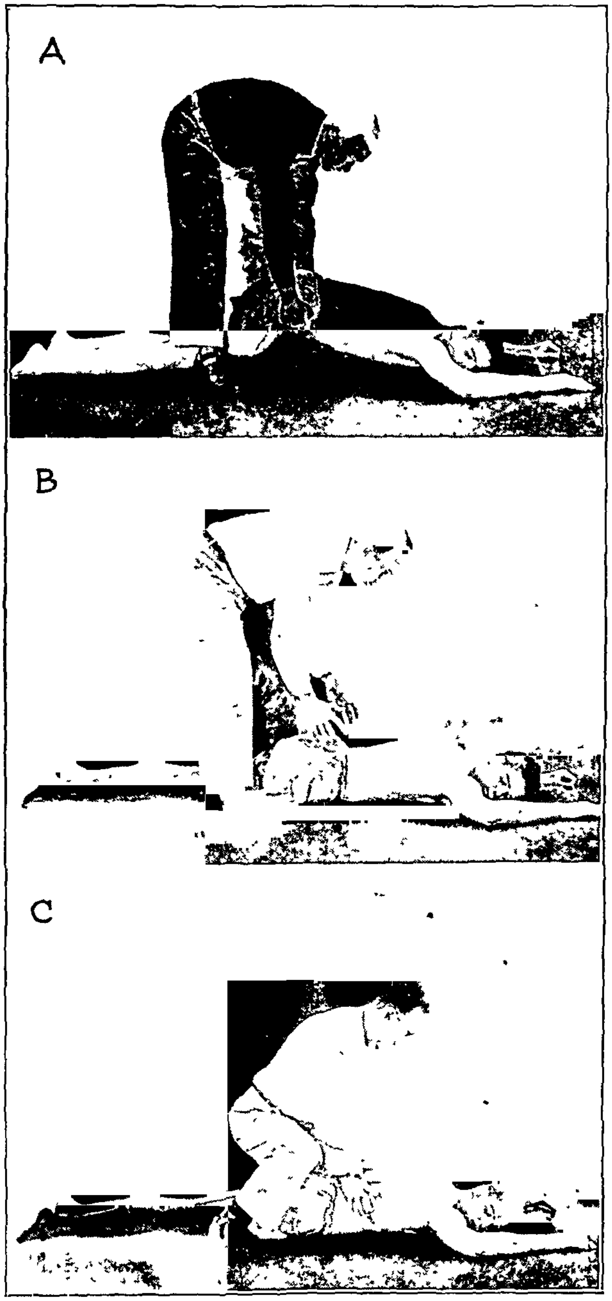


Fig. 3.—The Schafer-Emerson-Ivy method, "push and pull," from the standing position. *A*, elevation of hips to cause active inspiration. *B*, replacing hips and preparing to execute prone pressure. *C*, pressure on floating ribs to cause active expiration.

Airway Made with a Mouth Piece: The mouth piece was used with the nostrils closed by a clip to provide an air-tight airway and at the same time to permit the tongue and mandible to remain free, in order that we might obtain some information regarding how frequently they would interfere with air exchange.

This was studied in eight corpses. Air exchange was obtained in only half the cases with the Silvester (supine) method but in three fourths of the cases with the hip lift and prone pressure methods. The hip lift-prone pressure method and the arm lift-prone pressure method obtained air exchange in every case The data on the air exchange in those cases in which it was obtained are shown in table 4. The superiority of the two prone "push and pull" methods is evident.

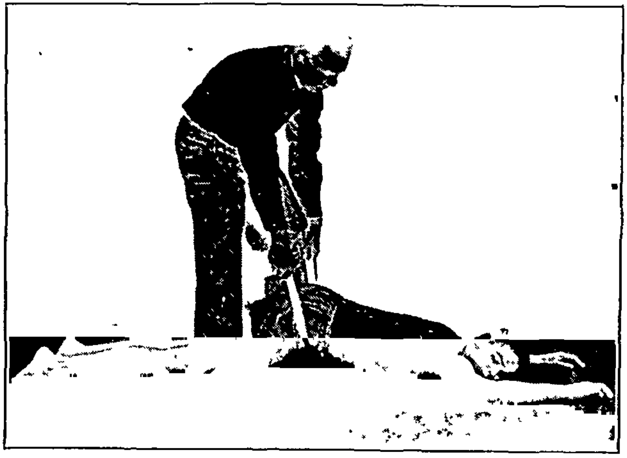


Fig 4.—Use of a belt to assist in the hip-lifting technic of Emerson.

The results of this phase of our work certainly emphasize the importance of the maintenance of an open airway. Even in our presumably skilled hands the prone pressure method failed to produce any measurable air exchange in one fourth of the cases, apparently because of a failure of adequate elastic recoil of the chest.

Natural Airway with an Anesthesia Mask: This is the type of mask that is generally used for giving artificial respiration by mechanical methods. The mask will leak unless held firmly on the face. The natural airway will become obstructed readily unless the mandible is held firmly forward and against the maxilla and the face to one side. Although it gives less accurate results, because of possible leakage of air, this method also proves the superiority of the hip lift-prone pressure method (table 5).

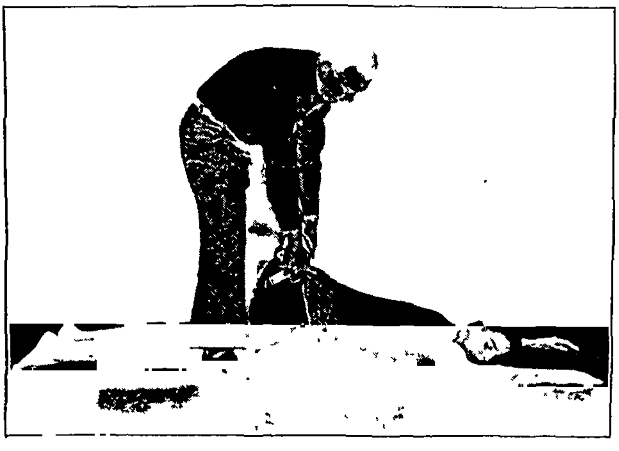


Fig. 5.—Use of victim's trousers to elevate hips as part of the Schafer Emerson-Ivy method of artificial respiration.

MECHANICAL METHODS

The use of the alternating negative and positive pressure ("suck and blow") and the automatic intermittent positive pressure resuscitators was rather simple. The mask was placed on the face with the mandible and face held in the appropriate position, and then the flows were recorded under various pressures (fig. 7).

The automatic intermittent positive pressure device (Burns' valve) was used on eight warm human corpses with the following averaged results: At pressures of 6, 9 and 12 mm. of mercury rates of 59, 37 and 30 cycles per minute, respectively, were obtained with an air exchange of 16, 51 and 107 cc., respectively, per cycle. When the Burns valve was operated at a pressure of 14.7 mm. of mercury, it performed at an average of 25 cycles per minute with an average air exchange of 185 cc. per cycle, the minute volume of ventilation being 4,625 cc.

Use of the alternating positive (+ 14 mm. of mercury) and negative (— 9 mm. of mercury) pressure resuscitator on these eight corpses resulted in an average rate of 21 cycles per minute with an average air exchange of 216 cc. per cycle, the minute volume of ventilation being 4,536 cc. Thus, operating at the same pressures, the two devices yielded approximately the same results.

Table 5.—*Results with Various Manual Methods and the Rocking Method in Thirteen Warm Corpses (Ordinary Anesthesia Face Mask)*

	Single Respiratory Cycle			
Procedure	Average, Cc.	Range, Cc.	Methods Compared, % *	Minute Volume, Cc., Rate 12/Min.
Prone rocking †	82	50-160	32	984
Hip lift ‡	91	15-147	35	1,092
Prone pressure	156	10-373	60	1,872
Hip lift-prone pressure	258	15-627	100	3,096
Arm lift-prone pressure	98	10-233	38	1,176
Supine-arm lift-chest pressure	213	0-724	82	2,556

* The hip lift-prone pressure method is equated as 100 per cent.
† Rocked through arc of 40 degrees 12 times per minute.
‡ Hips elevated 3 to 4 inches 12 times per minute.

Table 6.—*Results with "Suck and Blow" Resuscitator and Burns' Valve in Eight Warm Corpses*

	Single Respiratory Cycle				Minute Volume		
Pressures*	Average, Cc.	Range, Cc.	Methods Compared, % †	Cycles per Minute	Average, Cc.	Range, Cc.	Methods Compared, % †
Burns' Valve							
6	16	8.5-28	3	59	944	578-1,779	16
9	51	32-86	10	37	1,887	786-2,983	31
12	107	56-156	21	30	3,310	1,779-4,998	54
14.7	185	139-250	37	25	4,625	3,722-6,640	77
Resuscitator							
+14 —9	216	113-297	43	21	4,536	2,721-7,137	76

* Millimeters of mercury measured at the apparatus.
† Normal average values equated at 100 per cent: tidal air = 500 cc.; minute volume = 6,000 cc.

Table 6 shows the average and ranges of the results. An inadeqate ventilation or obstructed airway was not observed with mechanical respiration in eight cases in this work or in 16 other cases studied several years ago by Schwerma and Ivy.[20]

Results on Subjects with Voluntary Suspended Respiration.—This method was employed because so many investigators have used it and we desired to compare the results we obtained in corpses with those we might obtain by this method. The nine volunteers for this phase of our study were medical or graduate students. They were given instruction in the performance of the various manual methods of artificial respiration and in suspending respiration after a short period of hyperventilation. Training is required to "learn not to breathe." [18] Each method was then performed on the volunteer until he showed a regular pattern in the pneumogram from the spirometer, a basal metabolism test mouth piece and nasal clip being used. The volunteers had no knowledge of the results we had obtained on corpses by the various methods. In fact, we ourselves had not summarized our results when the volunteers were studied.

The results are shown in table 7. Comparison of results shows that they are essentially in agreement, except that the volume of air exchange is four times greater in the volunteers than in warm corpses (table 1). The "push and pull" methods in these volunteers yielded about twice as much air exchange as either a "push" or "pull' method alone. In a similar survey on passive volunteers Thompson [11] obtained two to three times as much ventilation with the hip lift-prone pressure method as with the Schafer method.

---

[20] Unpublished data.

Either the volunteers unconsciously aided the artificial maneuvers or there is less resistance in the conscious person to respiratory exchange. Numerous invalidating criticisms may be raised against this sort of experiment. Even though the results agree in general with those on the warm corpses, we are inclined to place much more weight on the results from the corpses and to consider them applicable in resuscitation of near-dead asphytic subjects.

Silvester [5] and Burns [1a] successfully used warm corpses before the onset of rigor mortis, within two hours after death, but Schafer,[6] Bolton [21] and Drinker [22] were unsuccessful in their attempts. The lack of success is easily understood by us and will be experienced by others unless they have their apparatus set up in the hospital and stand by day and night for a call from the attending nurses

Table 7.—*Results on Nine Normal Subjects with Suspended Respiration After Hyperventilation by Various Manual Methods and the Rocking Method*

Procedure	Single Respiratory Cycle: Average, Cc	Range, Cc.	Methods Compared, %*	Minute Volume, Cc, Rate 12/Min.
Tidal air	700	428-1,190	..	8,400
Supplemental	900	190-1,311	..	.....
Complemental	2,700	2,142-3,885	..	.....
Vital capacity	3,600	2,750-4,485	..	.....
Prone rocking †	950	314-1,428	45	11,400
Hip lift ‡	1,230	685-1,885	60	14,760
Prone pressure	1,000	485-1,652	48	12,000
Hip lift-prone pressure	2,070	1,414-2,671	100	24,840
Arm lift-scapular pressure	1,990	1,214-2,861	96	23,880
Arm lift-prone pressure	1,995	1,085-2,866	96	23,910
Supine-arm lift-chest pressure	1,800	1,071-2,799	87	21,600

* The hip lift prone pressure method is equated as 100 per cent.
† Rocked through an arc of 40 degrees 12 times per minute.
‡ Hips elevated 3 to 4 inches 12 times per minute

Pask [2b] reports a single case in which the intubated subject was anesthetized with thiopental sodium and ether and rendered apneic by forced ether inhalation. He found similar values for pulmonary ventilation (range 331 to 394 cc.) with the Schafer, Silvester and Eve methods when the subjects were rocked 30 degrees in each direction in the prone position or 45 degrees in the supine. When they were rocked 45 degrees in each direction in the prone position the values were higher (559 to 580 cc.). On a single anesthetized and curarized subject, Pask again found the Eve method superior and suggested that the rocking method may assist blood circulation (as inferred from oxygen consumption).

EASE OF PERFORMANCE OF MANUAL METHODS

The nine volunteers were asked, after they had received considerable instruction on the performance of the various methods, to assess the relative ease of performing them for a period of time that might be required in resuscitation. According to their assessment the methods fell into three groups.

Group 1 included those methods requiring little effort. The Schafer and Eve methods are in this group. Group 2 included the methods which are moderately exhausting but could be continued for a physiologically reasonable period by almost every operator under emergency conditions. The Silvester, the Schafer-Nielsen-Drinker and the Nielsen methods are in this group. Group 3 included the methods which are exhausting and could not be performed over a prolonged period, but could be prolonged over a physiologically reasonable period by almost every operator under emergency conditions. The Emerson and the Schafer-Emerson-Ivy methods belong here because the operator must lift the body at the hips. After indoctrination in performing the hip lift-prone pressure method from a kneeling position, the majority preferred this to the sole maneuver of lifting the hips. However, in the subsequent series, in which the hip roll-prone pressure method (fig. 6) was evaluated for efficacy of ventilation and ease of performance, it provided three-quarters the air exchange of the hip lift-prone pressure method and was notably easier of performance. It would readily be classified in upper group 2—almost in group 1

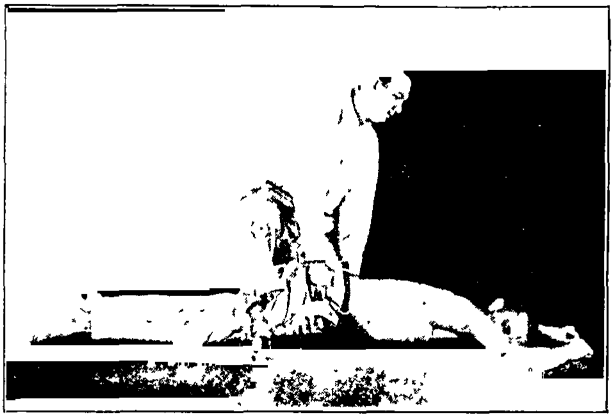


Fig. 6—The hip roll modification of the hip lift method

COMMENT

Our results reaffirm the fact that no one method of artificial respiration can be offered as completely satisfactory. We have therefore listed in table 8 the advantages and disadvantages of the rocking method of Eve and each of the manual methods included in our study. However, there can be no doubt regarding the observation that those manual methods which utilize both a "push and pull" maneuver are superior. As regards the amount of the air exchange obtained, there is not enough evidence available in our work or in the literature to warrant a conclusion that any one of the "push and pull" methods is superior to the other. It is noteworthy that each of the "push and pull" manual methods, as well as both mechanical methods used, produced a minute volume of 5,000 to 6,000 cc This is

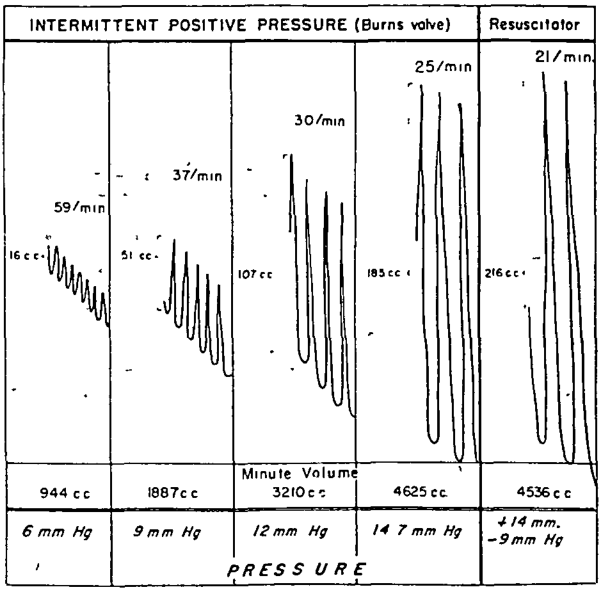


Fig. 7—Graphic representation of respiratory patterns obtained with various settings of intermittent positive pressure (Burns' valve) and "suck and blow" resuscitator devices

an optimum amount; more would result in the disadvantages of hyperventilation.

---

[21] Bolton in Schafer.[6]
[22] Drinker, C. K: Personal Communication to the authors.

Except for the armamentarium of the anesthetist and of the fire or police emergency crew, all mechanical devices must always be considered as adjuncts to and not substitutes for manual methods. This is especially true in view of the effectiveness of the "push and pull" manual methods; in other words, the mechanical resuscitators employed in this study (when operated at mask pressures of + 14 mm of mercury positive pressure and — 9 mm. of mercury negative pressure or at an intermittent positive pressure of + 14 mm. of mercury) are not more effective than a properly performed "push and pull" manual method. The properly employed mechanical resuscitator requires less skill than a properly performed "push and pull" manual method, is not fatiguing and can deliver pure oxygen; herein lie the most important advantages of a good mechanical resuscitator. There are other advantages, however[23] Since a resuscitator need be applied only to a patient's face, it can be employed where physical manipulation of the body is impossible or would be harmful, as during major surgical procedures, in accident cases with extensive burns, broken vertebrae, ribs and arms, for victims trapped under debris of excavations or overturned vehicles and during transportation to a hospital. The resuscitator further signals when the airway is obstructed and provides an aspirator.

TABLE 8—*Advantages and Disadvantages of Manual Methods and Eve (Rocking) Method*

Advantages	Disadvantages
SILVESTER	
1 Started immediately	1 Patient supine; airway can become obstructed
2 Requires only one rescuer	2 Fracture of ribs and rupture of the liver reported
3 Requires no apparatus.	3 Moderately exhausting
4 Provides good pulmonary exchange	4 Probably requires specially trained personnel
SCHAFER	
1 Almost universally known and taught	1 Tidal volume not large '
2 Simple to learn.	2 Fractures of ribs reported
3 Performed by anyone (including women and children)	3 Active expiration with only passive inspiration
4 Performed for indefinite periods of time	
5 Excellent results reported	
6 Requires no equipment	
7 Instituted immediately.	
8 Uses prone position.	
9 Requires but one rescuer.	
EVE	
1 Simple to learn	1 Requires proper apparatus
2 Performed by anyone	2 Time lost setting up apparatus if alone
3 Performed for indefinite time	3 Tidal volume not large
4 Accessory treatment can be carried on simultaneously	4 Stomach contents may be poured up into pharynx and subsequently aspirated
5 No fractures of bones, or ribs.	
6 Uses prone position	
7 Requires one rescuer to rock (but at least two to three to set up without neglecting patient)	
NIELSEN	
1 Requires one rescuer only.	1 Not well known
2 Started immediately	2 Moderately fatiguing
3 No appliances required.	3 May cause shoulder injuries or fracture of ribs
4 Prone position used	
5 Provides excellent exchange	
SCHAFER NIELSEN DRINKER	
1 Similar to established Schafer *method*	1 Requires two operators to complete *operation*
2 Can supplement Schafer method	2 May cause shoulder injuries
3 Uses prone position	3 Moderately fatiguing
4 Provides excellent exchange	
5 Performed immediately	
6 No apparatus required	
SCHAFER EMERSON IVY	
1 Easy to learn	1 Difficulty in lifting hips for long periods of time
2 Same position as Schafer	
3 Can be used to supplement Schafer	
4 Excellent pulmonary ventilation	
5 Performed immediately	
6 No apparatus required	
7 Requires only one rescuer	
8 No additional possibilities of trauma	

A number of articles have been published in recent years on the significance of maintaining and promoting the circulation during the administration of artificial respiration[24] It is certainly true that the maintenance of a continuous positive pressure in the lungs above 14 mm. of mercury (8 inches [20 cm] of water) interferes with venous return in a normal person, and it would be deleterious to maintain any appreciable continuous positive pressure in a person requiring resuscitation However, it does not follow that intermittent positive pressure is deletrious to blood flow through the lungs; if this were the case the Drinker respirator would be deleterious, since it is, in effect, an intermittent positive pressure device Whittenberger and Maloney[25] recommend the use of mild positive pressure in a Drinker respirator, alternating with the usual negative as an aid in cases of depressed circulation, although this may not be necessary in the average, young, robust patient with poliomyelitis. It is worth noting, however, that Drinker respirators, even when set for "no positive" (corresponding to negative in a resuscitator) always have a slight positive phase, at least 1 or 2 cm. of water; there is evidence that this is of value, at least to some patients. Further, Motley[26] has demonstrated that any decrease in cardiac output incident to the use of positive pressure is dependent on the type of curve produced and the resulting mean mask pressure. The most physiologic curve is one with a gradual inspiratory rise and a rapid expiratory fall to near atmospheric level, with the expiratory phase exceeding the inspiratory.

Under normal conditions it is known that inspiration produces a slight negative pressure in the large veins of the thorax and that expiration tends to retard the flow.[27] Furthermore, it has been found by radioactive tracer technic in heparinized, recently deceased dogs that the alternate mechanical inflation and deflation of the lungs may cause sufficient movement of blood to spread the radioactive substance throughout the blood vessels[24d] and that ventilation provided by mechanical means is more effective than that provided by manual means[28] There can be no doubt regarding the fact that inflation and deflation of the lungs, particularly when some tendency toward negative or inspiratory pressure is produced in the thorax, will promote a certain amount of blood flow. The amount, however, is not easily measured[24c] This is interesting from a mechanical viewpoint, but is probably of no physiological significance in resuscitation; Ivy and Schwerma[29] clearly demonstrated that there was no statistically significant difference in the effective ness of intermittent positive pressure and alternating positive and negative pressure in the actual resuscitation of dogs from carbon monoxide asphyxia. It may, of course, provide just enough extra circulation of blood in the first few crucial seconds or minutes of resuscitation to make a difference between survival and death. But this means only that the manual method which yields the greatest respiratory excursion, namely, one of the "push and pull" methods which creates positive and negative intrathoracic pressure, would be the method of choice, since a mechanical device is not present during these first few critical minutes. Regarding the choice of a mechanical method for prolonged artificial respiration, a significant difference was not found in the rate of return to normal of the blood pressure reduced to a low level by curare in the experiments of Ivy and Schwerma.[30] Therefore, as long as the method of obtaining pulmonary ventilation is optimally effective and does not lead to the formation of a continuous intrapulmonary positive pressure, the maximum effect possible on the blood flow or circulation is probably being accomplished. It is argued, further, that the Eve method promotes the circulation of blood because of the to and fro movements of the body and the effect of gravity during the rocking,[31] but this has yet to be shown.[19]

---

[23] Ross, B D: Five Year Study of Methods of Artificial Respiration, J A M A **129:** 443 (Oct 6) 1945 Carter, H A, and Potthoff, C J: Resuscitation Joint Statement Issued by Council on Physical Medicine and American National Red Cross, J A M. A **138:** 23 (Sept 4) 1948 Coryllos P. N Mechanical Resuscitators in Advanced Forms of Asphyxia, Surg, Gynec. & Obst **66:** 698 (April) 1938 Tatum, H, and Gingler, A M.. The Traumatic Effects of Positive Intratracheal Pressure, J Lab Clin Med **31:** 799 (July) 1946

[24] (*a*) Thompson, S A, and Rocky, E E The Effect of Mechanical Artificial Respiration upon Maintenance of the Circulation, Surg, Gynec & Obst **84:** 1059 (June) 1947 (*b*) Kerven, A M, and Laird, J Contribution a l'Étude de la ranimation dans les etats de mort apparente J de physiol et de path gen **37:** 129 (March) 1939 (*c*) Johnson, J, and Kirby, C K An Experimental Study of Cardiac Massage, Surgery **26:** 472 (Sept) 1949, Cardiac Resuscitation, in Symposium on Recent Advances in Surgical Physiology, S Clin North America **29:** 1745 (Dec) 1949. (*d*) Thompson, S A, Quimby, E A, and Smith, B C The Effect of Pulmonary Resuscitation Procedures upon the Circulation as Demonstrated by Use of Radioactive Sodium, Surg, Gynec & Obst **83:** 387 (Sept) 1946, The Effect of Pulmonary Inflation and Deflation upon the Circulation, J Thoracic Surg **17:** 323 (June) 1948

[25] Whittenberger, J L, Maloney, J V, and Sarnoff, S V Circulatory Effects of the Body Respirator, in Symposium and Exhibit on Inhalational Therapy, presented before the New York Academy of Medicine, December 1949 Maloney, J V, and Whittenberger, J L: Circulatory Effects of the Body Respirator, abstracted, Am J Med **8:** 393 (March) 1950

[26] Motley, H L, Cournand, A, Eckman, M, and Richards, D W, Jr Physiological Studies on Man with Pneumatic Balance Respirator, "Burns Model," J Aviation Med **17:** 431 (Oct) 1946 Motley, H L, and others Intermittent Positive Pressure Breathing Means of Administering Artificial Respiration in Man, J A M A **137:** 370 (May 22) 1948

[27] Fremont Smith, F The Role of Elongation and Contraction of the Inferior Vena Cava, Coincident with Respiration in the Return of Blood to the Heart Report of an Observation on Man, J Mt Sinai Hosp **9:** 432 (Nov Dec) 1942 Reid, W D. Respiration as a Factor in the Circulation of the Blood, Ann Int Med **17:** 206 (Aug) 1942

[28] Schwerma, H, Ivy, A C, Burkhardt, W. L, and Thometz, A F Resuscitation from Obstructive Asphyxia, Am J Physiol **156:** 145 (Feb) 1949. Birnbaum, G L, and Thompson, S A Resuscitation in Advanced Asphyxia, J A M A **118:** 1364 (April 18) 1942 Resuscitation in Advanced Asphyxia Role of Positive and Negative Pressure, Surgery **12:** 284 (Aug) 1942. Motley and others[26] Schwerma, H, Wolman, W, Sidwell, A E, Jr, and Ivy, A C. Elimination of Carbon Monoxide from the Blood of Acutely Poisoned Dogs, J. Appl Physiol **1:** 350 (Nov.) 1948

[29] Schwerma, H; Ivy, A C, Friedman, H, and La Brosse, E A Study of Resuscitation from the Nearly Fatal Effects of Exposure to Carbon Monoxide, Occup Med **5:** 24 (Jan) 1948

In the case of drowning, it has been proposed that first lowering the head to help drain the lungs is indicated. This idea is retained by some despite the generally accepted concept that active artificial respiration should be started immediately and despite Schafer's[6] observation in 1908 that little or no water was found in the lungs after fresh water drowning. The Gettler test,[32] published in 1921, is based on the fact that in postmortem submersion the chloride content of the blood is equal in the right and left sides of the heart whereas it is higher in the right side in fresh water drowning and higher in the left side in salt water drowning, showing that water and electrolytes move violently in a drowning person or animal.[33] In fresh water, the water is rapidly absorbed into the blood. In sea water, water and protein are drawn from the blood into the alveoli and bronchi as in pulmonary edema. This, of course, conforms with the well documented observation that only small quantities of fluid drain from the lungs during inversion after drowning.[34] Maintaining the body in a slightly inclined head-down position during artificial respiration is probably advisable to allow drainage of any fluids that do collect and to combat shock.

Swann,[33c] because he believes that "small amounts" of water may block the airways, has suggested an attempt at drainage before resuscitation. This suggestion is contrary to the accepted dictum that artificial respiration should be given immediately, and it does not conform to our realistic experience. In the presence of massive pulmonary edema in corpses, air exchange by any method is inadequate, and as found in studies by Freeman and Ivy[35] on phosgene poisoning no method of artificial respiration will save life. But, in the presence of moderate pulmonary edema, artificial respiration, though air exchange is reduced, will provide ventilation immediately and during the stage that is crucial for the resuscitation of the heart. Furthermore, our data show that in such cases one of the "push and pull" methods of manual artificial respiration is just as effective in accomplishing pulmonary ventilation as the mechanical resuscitators operating at a maximum mask pressure of 14 mm. of mercury. Operation at a higher pressure is not indicated for routine use or by other than medical personnel, because of the possible danger of interstitial pulmonary emphysema.

Differences of opinion regarding a question that may affect survival can be dealt with only by survival experiments in which a sufficient number of cases are used to give significance to any difference found. Unfortunately this question cannot be determined on the dog drowned to an arbitrary end point in fresh water, because in the dog that absorbs a lethal amount of water into the pulmonary blood acute ventricular fibrillation[36] develops and the dog dies regardless of any resuscitation procedure. Regardless of the end point at which resuscitation is started, all resuscitation procedures save the same number of dogs.[37] Whether this holds for man is not known. It does not hold for fresh water drowning of cats, rabbits or monkeys, in some of which there may develop ventricular fibrillation.[36e]

Cot[38] reports that 10 to 15 per cent of deaths from drowning are due to what he calls "white" asphyxia; the remainder are what he calls "blue" asphyxia and are due to obstruction with water and mucus. The former deaths, he explains, are due to syncope with little or no water in the lungs, and Banting[36c] thought that some deaths were due to spasm of the glottis. In fresh water drowning there need be no equivocation as to whether spasm of the glottis occurred early and caused death, because an examination of the blood for hemolysis and chloride would settle the point.

It would be important to settle the question of whether spasm of the glottis does occur in drowning in man and persists under deep asphyxiation. We know that an asphyxial death may be produced reflexly in certain aquatic animals by submerging of the nostrils. However, reflexly induced spasm of striated muscle does not persist in deep anesthesia or asphyxia or to the point of death.

SUMMARY AND CONCLUSIONS

1. The relative efficiency, as regards the minute volume of pulmonary ventilation, of the manual and mechanical methods for administering artificial respiration for resuscitation was determined on 109 warm corpses within one hour after death and before the onset of rigor mortis and on nine normal subjects with voluntarily suspended respiration after hyperventilation.

2. The manual methods in which the subject lies prone or supine and which utilize both a "push and pull" principle provide approximately twice the minute volume of ventilation obtained with those which utilize only a "push" or a "pull" principle. However, the supine position was found to result in respiratory obstruction in one-half the cases. The "push" or "pull" methods alone did not ventilate in one fourth of the warm corpses.

3. The Nielsen method used in the Scandinavian countries is more effective than the Schafer method. The former is a "push and pull" method and the latter a "push" method.

4. Lifting the hips (Emerson) 4 inches (10 cm.) with the subject prone, a "pull" method, has been found by us to be even more effective than the Schafer method.

5. When the hip-lifting maneuver (Emerson method) is added to the lower chest pressure maneuver (Schafer method) to yield a "push and pull" method (Schafer-Emerson-Ivy method), we find that it is as effective as the Nielsen method or the Schafer-Nielsen-Drinker method.

6. Thus, those who now are indoctrinated with the Schafer prone presssure method can double the ventilating efficiency of the method by lifting the hips 4 inches 12 times each minute, alternating with the push on the lower part of the chest. Lifting the hips is fatiguing and, after the crucial first several minutes, may be employed after every second or third "push" on the lower part of the chest. The newer hip roll-prone pressure method is much easier to perform than the hip lift-prone pressure method and can be executed for long periods of time. The Nielsen method is less fatiguing to perform than the Schafer-Emerson-Ivy method.

---

[30] Schwerma, H., and Ivy, A. C.: Safety of Modern Alternating Positive and Negative Pressure Resuscitators, J. A. M. A. **129**: 1256 (Dec. 29) 1945.

[31] Eve, F. C.: Artificial Circulation Produced by Rocking, Brit. M. J. **2**: 295 (Aug. 23) 1947.

[32] Gettler, A.: Method of Determining Death by Drowning, J. A. M. A. **77**: 1650 (Nov. 19) 1921. Jetter, W. W., and Moritz, A. R.: Changes in Magnesium and Chloride Content of Blood from Drowning in Fresh and in Sea Water, Arch. Path. **35**: 601 (April) 1943.

[33] (*a*) Footnote 16. (*b*) Swann, H. G.: Report on Studies in Resuscitation, Monograph, *University of Texas, Medical Branch, Nov. 1947.* (*c*) Studies in Resuscitation, Memorandum Report, Aero M. Lab., U. S. Air Force, MCREXD—696—79G, March 28, 1949. (*d*) Studies in Resuscitation, Air Force Technical Report, U. S. Air Force, no. 5972, August 1949. (*e*) Swann, H. G., and Brucer, M.: The Cardiorespiratory and Biochemical Events During Rapid Anoxia Death: Fulminating Anoxia, Texas Rep. Biol. & Med. **7**: 511, 1949.

[34] Karpovich, P. J.: Water in the Lungs of Drowned Animals, Arch. Path. **15**: 828 (June) 1933.

[35] Freeman, S., and Ivy, A. C.: Unpublished reports.

[36] (*a*) Swann.[16] (*b*) Footnote 28. (*c*) Banting, F. G.; Hall, G. E.; Janes, J. M.; Leibel, B., and Lougheed, D. W.: Physiological Studies in Experimental Drowning: Preliminary Report, Canad. M. A. J. **39**: 226 (Sept.) 1938. (*d*) Lougheed, D. W.; Janes, J. M., and Hall, G. E.: Physiological Studies in Experimental Asphyxia and Drowning, Canad. M. A. J. **40**: 423 (May) 1939. (*c*) Gordon, A. S.; Raymon, F.; Fainer, D. C., and Ivy, A. C.: Drowning Phenomena in Various Species, to be published.

[37] Fainer, D. C.; Martin, C. G.; Schwerma, H., and Ivy, A. C.: Resuscitation from Fresh Water Drowning, abstracted, Federation Proc. **8** (pt. 1): 43 (March) 1949.

[38] Cot, C.: Les asphyxies du temps de paix: Submersion, électrocution, intoxication oxycarbonique, et du temps de guerre; gaz de combat, guide du sauveteur spécialisé, Paris, 1932.

7. Intermittent positive (+ 14.7 mm. of mercury) pressure devices and alternating positive (+ 14 mm. of mercury) and negative (— 9 mm. of mercury) pressure resuscitators provide safe, adequate exchange. These machines will signal when obstruction occurs, although inadequate ventilation or obstruction of the airway has not been observed with mechanical respiration.

8. Except for the armamentarium of the anesthetist and the fire, police and rescue emergency crew, all mechanical devices must always be considered as adjuncts and not substitutes for manual method, preferably of the "push and pull' type. The mechanical resuscitator operating at a maximal mask pressure of + 14 mm. of mercury is no more effective than a properly performed "push and pull" manual method. The properly employed mechanical resuscitator requires less skill than a properly executed "push and pull" manual method, is not fatiguing and can furnish 100 per cent oxygen; herein lie the most important advantages of a good mechanical resuscitator. There are other advantages, however. Since a resuscitator need be applied only once to a patient's face, it can be employed where physical manipulation of the body is impossible or would be harmful, as during major surgical procedures, in accident cases with extensive burns, broken vertebrae, ribs or arms, for victims trapped under debris of excavations or overturned vehicles and during transportation to a hospital. Some resuscitators signal when the airway is obstructed and provide an aspirator.

9. If a method of resuscitation provides optimal pulmonary ventilation without producing a continuous intrapulmonary positive pressure, the concern regarding the relation of the method to the promotion or maintenance of the circulation should be secondary. Any effective movement of blood produced will probably be proportional to the effective manual or mechanical intrapulmonary pressure alteration produced.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following report.

R. T. Stormont, M.D., *Secretary.*

POTENCY OF HEPARIN SODIUM

Heparin sodium, widely employed as a potent anticoagulant for the treatment of intravascular clotting, received official status in the U. S. Pharmacopeia XIV, Nov. 1, 1950. Because the drug is not a pure homogeneous substance and must be assayed by biologic methods, the Pharmacopeia has adopted a standard of potency which it requires to be expressed in terms of a heparin unit rather than in terms of weight as currently appears in the labeling for commercially available products. One U.S.P. heparin unit is approximately the quantity of heparin sodium required to maintain fluidity in 1 cc. of plasma prepared according to the directions of the U.S.P. assay for heparin sodium.

The U.S.P. standard provides for a minimum potency of 100 U.S.P. heparin units per milligram but does not limit potency above this equivalent, provided such highly purified products are labeled in terms of units. Therefore, products with greater potency than the minimum retain U.S.P. status and are not construed to be superior to preparations having the official minimum potency.

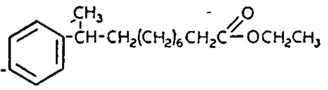
The Council will henceforth require manufacturers of accepted products to indicate potency in terms of U.S.P. units, until such time as a sufficient degree of purification has been achieved to permit assay by chemical methods. Because dosage is still subject to control by clinical tests of the clotting or coagulation time, little difficulty should be experienced in the use of more potent (purified) preparations, as long as the heparin unit rather than weight is used as a basis for determination of the initial and subsequent dosage of the drug. It is hoped that eventually heparin may be sufficiently purified to permit declaration of potency in terms of weight rather than units, in accordance with the current practice for all drugs which can be accurately assayed by chemical methods.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. Stormont, M.D., *Secretary.*

ETHYL IODOPHENYLUNDECYLATE.—Pantopaque (Lafayette Pharmacal Inc.)—$C_{19}H_{29}IO_2$—M.W. 416.34.—A mixture of the κ and ω isomers of ethyl iodophenylundecylate, which is of quite uniform, but unknown, proportions. The principal isomer is thought to be the κ, whose structural formula may be represented as follows:



Actions and Uses.—Ethyl iodophenylundecylate is an absorbable iodized fatty acid compound of low viscosity designed especially for myelography. It is particularly useful for study of the lumbar region. Intraperitoneal or oral administration in lower animals is moderately toxic, but no toxic phenomena have been observed with massive doses injected intrathecally in higher animals. It is absorbed from the peritoneal cavity of experimental animals in about six weeks and from the subarachnoid space of dogs in about 15 months. In humans, intrathecal injection of 2 to 5 cc. is well tolerated even when the agent is left in the spinal canal. When the bulk of the injected material is removed, the remainder is usually absorbed within two months. When none is removed, absorption proceeds at a variable rate depending on conditions within the spinal canal, sometimes requiring several years.

The incidence and severity of side effects following myelography with aspiration of ethyl iodophenylundecylate is only slightly greater than with ordinary lumbar puncture. In 10 to 30 per cent of patients there may be transient elevation in temperature and increase of symptoms referable to a back condition. The agent should not be employed when lumbar puncture is contraindicated, and to avoid subdural and extra-arachnoid extravasation it should not be used within 10 days of a previous lumbar puncture. It should not be employed as a contrast medium for other body cavities, because the limitations and contraindications for such use are not known.

Dosage.—Ethyl iodophenylundecylate is injected intrathecally by lumbar puncture technic; the 2 to 5 cc. dose is usually injected between the third and fourth lumbar segments. Care should be exercised to ascertain that the needle point is in the subarachnoid space. The injection should be made slowly to detect unusual resistance from obstruction. The needle with adapter is left in place during myelography to implement removal of the agent when the examination is completed. The agent is removed by aspiration in conjunction with fluoroscopic visualization.

Tests and Standards.—

Physical Properties: Ethyl iodophenylundecylate is a colorless to pale yellow, odorless, viscous liquid. The color darkens on long exposure to air. The specific gravity (20/20) is between 1.240 and 1.263. The refractive index is between 1.5230 and 1.5280. It is freely soluble in alcohol, benzene, chloroform and ether and very slightly soluble in water.

Identity Tests: Place about 1 ml. of ethyl iodophenylundecylate, 15 ml. of water and 7 Gm. of sodium dichromate in a 50 ml. round-bottom flask. Carefully add 10 ml. of sulfuric acid. Moderate the vigorous reaction which ensues by cooling the flask with tap water. After the reaction has stopped, reflux the mixture for 2 hours. Cool the contents of the flask and pour it into 25 ml. of water. Filter the mixture with suction, wash the precipitate with a little cold water and recrystallize it from 10 ml. of diluted alcohol. The glistening leaflets of *p*-iodobenzoic acid formed melt between 263 and 265 C.

(Saponification Equivalent) Place about 1 Gm. of ethyl iodophenylundecylate, accurately weighed, in a 250 ml. flask. Add exactly 25 ml. of 0.5 *N* alcoholic potassium hydroxide. Reflux the mixture on a steam bath for 1 hour. Cool the mixture, add 25 ml. of water and 15 drops of phenolphthalein T.S., and titrate with 0.5 *N* hydrochloric acid. Calculate the saponification equivalent (S) from the equation:

$$S = \text{mg. of sample} \div [(\text{ml. KOH} \times N) - (\text{ml. HCl} \times N)].$$

The saponification equivalent is not less than 395 nor more than 420.

Purity Tests: Dissolve 1 ml. of ethyl iodophenylundecylate in 10 ml of chloroform in a glass-stoppered cylinder, add 3 drops of phenolphthalein T.S. and 0.3 ml. of 0.1 *N* sodium hydroxide, stopper, and shake the mixture vigorously: the mixture becomes red *(absence of free acids).*

Place 3 ml. of ethyl iodophenylundecylate and 10 ml. of freshly prepared 0.5 *N* potassium iodide in a 25 ml. glass-stoppered cylinder. Add 5 drops of freshly prepared starch T.S., stopper, shake the mixture vigorously for 15 seconds and allow the cylinder to stand: the aqueous layer shows no blue color *(absence of free iodine).*

Ash about 1 Gm. of ethyl iodophenylundecylate, accurately weighed: the amount of residue is not more than 0.1 per cent.

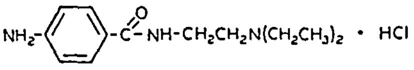
Assay: (Iodine) Place about 0.5 Gm. of ethyl iodophenylundecylate, accurately weighed, 12 Gm. of halogen free sodium peroxide and 0.2 Gm. of lactose in a Parr bomb. Tighten the cap with a wrench and shake the mixture for 45 seconds. Place the bomb in a short length of steel pipe supported vertically over a Bunsen burner. Put a few drops of water on the top of the bomb cap. Light the burner and place it directly under the bomb. (*Caution!* Wear goggles. View the operation by means of a slanting mirror placed at the top of the apparatus.) Heat the bomb until fusion occurs, as shown by the sudden boiling of the water on the bomb cap (about 45 seconds). Cool the bomb in air for 5 minutes, then plunge it into cold water in a metal vessel. Rinse the bomb with water, remove the cap and place the bomb cup in 300 ml. of cold water (*Caution!* keep the mouth of the cup pointed away from you). After the fusion melt is completely dissolved, remove the cup and rinse it with a little cold water. Add the rinsings to the solution. Cool the solution to 10 C. and carefully acidify it to congo red paper with 50 ml. of 1:1 nitric acid. Finally add about 0.5 Gm. of sodium bisulfite dissolved in 10 ml. of water. Heat the solution to boiling, filter it through a tight filter paper, wash the paper thoroughly and add the washings to the solution. Very slowly and with stirring add an excess of 0.1 *N* silver nitrate. Stir to coagulate the precipitate and filter the mixture through a tared Gooch crucible. Wash the precipitate with 300 ml. of water, dry at 105 C. for one hour, cool and weigh. Each Gm. of silver iodide formed is equivalent to 0.5405 Gm. of iodine. The amount of iodine present is not less than 29.0 nor more than 30.5 per cent, equivalent to not less than 95 nor more than 100 per cent of ethyl iodophenylundecylate.

Lafayette Pharmacal Inc., Lafayette, Ind.

Pantopaque: 3 cc. ampuls: An undiluted liquid, ethyl iodophenylundecylate, containing 30.5 per cent iodine in organic combination.

U. S. trademark 401,476. Patent 2,348,231.

PROCAINE AMIDE HYDROCHLORIDE.—Pronestyl Hydrochloride (E. R. Squibb and Sons).—$C_{13}H_{21}ON \cdot HCl$.—M.W. 271.79.—*p*-Amino-N-(2-diethylaminoethyl) benzamide hydrochloride.—The structural formula of procaine amide hydrochloride may be represented as follows:



Actions and Uses.—Procaine amide hydrochloride, like procaine hydrochloride, depresses the irritability of the ventricular muscle. Unlike the latter, the amide is only partially hydrolyzed by plasma esterase to *p*-aminobenzoic acid and diethylaminoethanol, so that its effect is more prolonged. Procaine amide is tolerated in larger intravenous doses than is procaine; on a weight basis, the amide is about one-half to two-thirds less toxic. It differs from procaine also in that it does not produce significant central stimulatory effects. The action occurs almost immediately after intravenous administration and the plasma level declines about 10 to 15 per cent per hour; after oral administration therapeutic levels are attained within 30 minutes to one hour. Plasma levels and urinary excretion rates following oral administration are comparable to those following intravenous injection, indicating almost complete absorption of the drug by the gastrointestinal tract. About 60 per cent is excreted unchanged; some is probably hydrolyzed as indicated above; the fate of the remainder is unknown.

Procaine amide hydrochloride is useful for the treatment of ventricular arrhythmias and extrasystoles occurring either in cardiac diseases or during general anesthesia. When administered intravenously the drug produces a hypotensive effect which is less severe than that with procaine; this effect is partially due to vasodilatation. Hypotensive reactions may be precipitous and clinical judgment is required to determine whether it is necessary to administer vasoconstrictor agents or to discontinue therapy. Epinephrine is likely to aggravate an existing arrhythmia and is therefore generally contraindicated during cyclopropane anesthesia. Until more conclusive evidence becomes available procaine amide hydrochloride is not recommended for the prevention of cardiac arrhythmias, anticipated in either conscious or unconscious subjects.

Dosage.—In conscious patients: For the treatment of ventricular tachycardia, 1 Gm. orally, followed by 0.5 to 1 Gm. every four to six hours as indicated. For the treatment of runs of ventricular extrasystoles, 0.5 Gm. orally every four to six hours as indicated. During anesthesia: 0.1 to 1.0 Gm. (1 to 10 cc. of a solution containing 100 mg. per cc.) intravenously.

Occasional transient electrocardiographic changes resembling those of quinidine intoxication have been observed with procaine amide hydrochloride and should be interpreted by a cardiologist. Intravenous injection is subject to the danger of hypotensive action; oral administration is not

Tests and Standards.—

Physical Properties. Procaine amide hydrochloride is a white to tan, odorless, crystalline solid. It melts between 165 and 169 C. It is very soluble in water, soluble in alcohol, slightly soluble in chloroform, and very slightly soluble in benzene and ether.

Identity Tests. Dissolve about 1 Gm. of procaine amide hydrochloride in 10 ml. of water and add 10 ml. of sodium hydroxide T.S. Extract the mixture twice with 10 ml. of a 1:1 mixture of ether and benzene. Dry the combined extracts over anhydrous calcium sulfate for 30 minutes. Decant the solution into a small flask, add 5 ml. of dry pyridine and add dropwise 1 ml. of benzoyl chloride. Warm the mixture on a steam bath for 30 minutes and pour it into 100 ml. of sodium hydroxide T.S. Separate the organic layer and wash it with 20 ml. of water. Cool the solution to about 10 C., whereupon a crystalline solid separates. Filter the mixture with suction and recrystallize the solid from 20 ml. of diluted alcohol. Dry the solid at 105 C. for one hour: the procaine amide benzoate formed melts between 180 and 187 C.

Prepare a 0.0005 per cent solution of procaine amide hydrochloride and measure the optical density spectrophotometrically in the range 2,500-3,000 A. A maximum occurs at 2,780 A (*distinction from procaine hydrochloride which has a maximum at 2,880 A*).

Purity Tests. Dissolve the sulfated ash, prepared as described in the last paragraph in this section, in 23 ml. of water, add 2 ml. of diluted acetic acid and test for heavy metals by the method of *U.S.P. XIV*, page 717: the amount of heavy metals present is not more than 20 p.p.m.

Dry about 1 Gm. of procaine amide hydrochloride, accurately weighed, at 105 C. for four hours: the loss in weight is not more than 0.2 per cent.

Char about 1 Gm. of procaine amide hydrochloride, accurately weighed. Cool the residue, add a few drops of sulfuric acid and ignite: the amount of residue is not more than 0.1 per cent.

Assay. (Nitrogen) Accurately weigh about 1 Gm. of procaine amide hydrochloride and transfer it to a 500 ml. Kjeldahl flask. Determine the nitrogen content as directed in *U.S.P. XII*, page 740. Each ml. of 0.5 *N* acid consumed is equivalent to 0.007004 Gm. of nitrogen. The amount of nitrogen present is not less than 15.1 nor more than 15.8 per cent, equivalent to not less than 97.5 nor more than 102.5 per cent of procaine amide hydrochloride.

Dosage Forms of Procaine Amide Hydrochloride

Capsules. *Identity Tests.* The contents of the capsules respond to the identity tests in the monograph for Procaine Amide Hydrochloride.

Assay. (Nitrogen) Accurately weigh an amount of powder equivalent to about 1 Gm. of procaine amide hydrochloride and determine the nitrogen as described in *U.S.P. XIV*, page 740. Each ml. of 0.5 *N* acid consumed is equivalent to 0.007004 Gm. of nitrogen. The amount of nitrogen present is not less than 14.7 nor more than 16.2 per cent, equivalent to not less than 95.0 nor more than 105.0 per cent of the labeled amount of procaine amide hydrochloride.

Solution (10 per cent Sterile). *Physical Properties.* Procaine amide hydrochloride sterile solution is a clear, water white liquid. The *pH* is about 5.5.

Identity Tests: Procaine amide hydrochloride solution responds to the identity tests in the monograph for Procaine Amide Hydrochloride.

Assay. (Nitrogen) Accurately measure a volume of solution containing about 1 Gm. of procaine amide hydrochloride and transfer it to a 500 ml. Kjeldahl flask. Determine the nitrogen content by the method of *U.S.P. XII*, page 740. Each ml. of 0.5 *N* acid consumed is equivalent to 0.007004 Gm. of nitrogen. The amount of nitrogen present is not less than 14.3 nor more than 16.6 per cent, equivalent to not less than 92.5 nor more than 107.5 per cent of the labeled amount of procaine amide hydrochloride.

E. R. Squibb and Sons, New York

Capsules Pronestyl Hydrochloride: 0.25 Gm.

Solution Pronestyl Hydrochloride: 10 cc. vials: A solution containing 100 mg. of procaine amide hydrochloride in each cc. Preserved with 0.9 per cent benzyl alcohol and 0.09 per cent sodium bisulfite.

DIHYROSTREPTOMYCIN-U.S.P. (See The Journal, July 8, 1950, page 896).

The following dosage form has been accepted:

Premo Pharmaceutical Laboratories, Inc., South Hackensack, N. J.

Dihydrostreptomycin Sulfate: 50 cc. vials. Dihydrostreptomycin sulfate powder equivalent in activity to 5 Gm. of dihydrostreptomycin base.

DIA-MER-SULFONAMIDES (See New and Nonofficial Remedies 1950, page 126, Sulfadiazine-Sulfamerazine Combined).

The following dosage forms have been accepted:

Casimir Funk Laboratories, New York

Syrup Duo-Sulfanyl with Sodium Citrate: 118.3 cc., 473 cc. and 3.78 liter bottles. A suspension containing 50 mg. each of sulfadiazine and sulfamerazine and 0.1 Gm. of sodium citrate in each cc.

E. S. Miller Laboratories, Inc., Los Angeles

Tablets Sul-Di-Mill with Sodium Bicarbonate: Each tablet contains 0.22 Gm. each of sulfadiazine and sulfamerazine and 0.3 Gm. sodium bicarbonate.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. . . . CHICAGO 10, ILL.

Edited by
AUSTIN SMITH, M.D.

Associate Editor
JOHNSON F. HAMMOND, M D.

Editor for Current Medical Literature, GEORGE HALPERIN, M D.

Subscription price . . Twelve dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

SATURDAY, DECEMBER 23, 1950

ANTICOAGULANTS AS A CAUSE OF HEMORRHAGE

Physicians using anticoagulants must beware of the risk of hemorrhage. Major hemorrhage occurred in 1.9 per cent of 9,609 patients given dicumarol,® according to the literature. Data obtained from a questionnaire[1] answered by 136 physicians experienced in the use of dicumarol® and heparin indicate that major hemorrhage occurred in 2 per cent of about 15,500 patients treated. The chief site of major hemorrhage was the urinary tract. Gross hematuria occurred in 93 cases recorded in the questionnaire, but in no instance was it the cause of death although hematuria was associated with fatal bleeding in other sites in three cases. Hematuria was not followed by residual renal impairment Most other instances of major bleeding were associated with pathological lesions in the gastrointestinal tract or lungs or were in postoperative sites. In the Report of the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction[2] hemorrhagic complications occurred in 54 patients, or 9 per cent of the treated group; in half the condition was mildly severe. An additional 6 per cent of the treated group had hemorrhage not due to anticoagulants, while in the "control" untreated group hemorrhage occurred in 6 per cent. Hemopericardium was found in 11 of the treated and only four of the control group.

Eighty deaths have been attributed to hemorrhage following the use of anticoagulants. Duff and Shull[3] found 21 deaths in the literature due to dicumarol® and added two others; in addition they mentioned five other deaths due to heparin or dicumarol.® Subsequent reports of four deaths have appeared.[4] Nichol[1] has added 35 previously unpublished hemorrhagic deaths due to heparin or dicumarol® brought to light by a questionnaire, showing that many such catastrophies do not find their way into print. Cohen[5] recently collected from the literature 12 deaths in patients with subacute bacterial endocarditis from cerebral hemorrhage in combined heparin-antibiotic therapy, and added two more In the report of Duff and Shull[3] and in Nichol's article, 11 similar deaths were included, making 25 recorded deaths from cerebral hemorrhage in cases of subacute bacterial endocarditis treated with combined antibiotic and anticoagulant therapy. These deaths occurred prior to 1945; since that time it has been generally agreed that anticoagulants have no place in the treatment of this condition, although cerebral hemorrhage does occur without anticoagulant therapy in subacute bacterial endocarditis due to rupture of a mycotic aneurysm or hemorrhagic cerebral infarction. Death occurred in 55 patients who were being treated for conditions other than subacute bacterial endocarditis; 52 of these deaths occurred in the United States.

Fatal hemorrhage was generalized in 13 patients receiving dicumarol®; this was often due to complete lack of laboratory control. Nine deaths occurred in patients with carcinomatosis for whom the outlook was poor. That three patients with dissecting aortic aneurysm were treated on the assumption myocardial infarction was present points to the need to rule out this condition before anticoagulants are used. Hemopericardium was found without ventricular rupture in three other cardiac cases. Five deaths resulted primarily from the act of performing lumbar sympathetic blocks when anticoagulants were in force, although hemorrhage was found elsewhere in three cases. The use of spinal anesthesia in one patient and the performing of dorsolumbar sympathectomy in another, during the concomitant use of anticoagulants, accounted for two deaths. Fatal cerebral hemorrhage developed in 10 patients, half of whom had hypertension, but whether hypertension increases the risk of cerebral hemorrhage during anticoagulant therapy cannot be stated. Of 78 cases of long term dicumarol® therapy[6] hypertension was present in 37 per cent, yet cerebral hemorrhage developed in only one hypertensive patient.

Clinicians experienced in the use of anticoagulants agree there is less risk of hemorrhage with heparin than with dicumarol.® The Lee-White test of clotting time to control heparin therapy can be done by the average technician. Protamine sulfate, given intravenously, helps to correct the coagulation defect following heparinization. Unless the available laboratory is well versed in the pitfalls of the prothrombin determination, dicumarol® should not be used, for lack of reliable laboratory facilities to measure prothrombin time is the most important of all contraindications to its use. The vagaries of the Quick test of prothrombin time or the Link-Shapiro modification of this test necessitate special knowledge of the technic. Bleeding induced by dicumarol® is usually controlled by adequate amounts of water-soluble vitamin K (menadione bisulfite) or K oxide. Transfusions of blood and plasma are of value after hemorrhage due to either heparin or dicumarol.®

---

[1] Nichol, E S The Risk of Hemorrhage in Anticoagulant Therapy, Ann West Med & Surg 4:71 (Feb) 1950

[2] Wright, I S, Marple, C D, and Beck, D H.· Report of the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction, Am Heart J. **36**: 801, 1948

[3] Duff, I F, and Shull, W. H. Fatal Hemorrhage in Dicumarol® Poisoning, *J A M A* **139**: *762 (March 19) 1949*

[4] Allen, A W · Present Day Concept of Treatment of Thrombosis and Embolism, Pennsylvania M J **52**: 113, 1948 Hammarsten, J F Hemopericardium Without Rupture of the Heart Following Dicumarol Therapy for Myocardial Infarction Minnesota Med **32**: 1003 (Oct) 1949 Powers, J S, Jr Toxicity of Dicumarol, Review of the Literature and Report of Two Cases, *Ann Int Med* **32**: *146 (Jan) 1950* O Connor, W R, Preston, F W, and Theis, F V. Retroperitoneal Hemorrhage Following Lumbar Sympathetic Block During Treatment with Dicumarol, Ann Surg **131**: *575 (April)* 1950

[5] Cohen, S M. Massive Cerebral Hemorrhage Following Heparin Therapy in Subacute Bacterial Endocarditis Report of 2 Cases with a Review of the Literature, J Mt Sinai Hosp **16**: 214 (Nov Dec) 1949.

[6] Nichol, E. S, and Berg, J. I. Long Term Dicumarol Therapy to Prevent Recurrent Coronary Artery Thrombosis, Circulation **1**: 1097 *(May) 1950*

False confidence is inspired in the clinician if the laboratory renders the prothrombin time in percentage of normal. To follow adequately the prothrombin response to dicumarol® the clinician should know the normal range of the test as done by the available laboratory, and he should adjust the dicumarol® dosage in an attempt to maintain the prothrombin time between two and two and a half times the average normal, expressed in seconds obtained by identical technic with the same thromboplastin, in which event the percentage of prothrombin activity will fall between 10 and 30 per cent, a safe yet effective bracket. Hemorrhage rarely occurs until the prothrombin activity is depressed to 5 per cent, unless some pathologic lesion is present in the kidney, gastrointestinal tract, lungs or brain.

The incidence of hemorrhage following the use of anticoagulants depends to some extent on the philosophy of the clinician, who may be inclined to "push" the dosage in the belief that it is more desirable to assure patients with cardiovascular disease full protection against thromboembolic complications, thus running some risk of hemorrhage, rather than to use a dose carrying with it so little chance of hemorrhage that it might fail to inhibit intravascular clotting. Physicians must make it their responsibility to see that prothrombin or clotting studies are accurately performed, as it now becomes plain that deaths from anticoagulants, other than in persons taking dicumarol® without medical supervision, ensues chiefly from poor laboratory control, while overdosage by the physician, concomitant ill advised surgical procedures and diagnostic error account for the remainder of anticoagulant-induced fatalities.

EPIDEMIC PLEURODYNIA

During August and September of 1947, 114 patients with "epidemic pleurodynia" were admitted to one Boston hospital.[1] The disease was characterized by fever and pleuritic pain, often accompanied by headache, abdominal pain and stiffness of the back and neck. From stored throat washings from typical cases Weller [2] and associates of Harvard University and Tufts College have recently isolated a virus antigenically related to the "Connecticut 5" virus previously isolated by Melnick [3] from a case of "nonparalytic poliomyelitis."

After intracerebral inoculation of 100 LD_{50} of the new virus into newborn mice, death usually takes place in three to six days. Necropsy usually shows two to three drops of light yellow fluid in the abdominal cavity, diffuse hepatitis and occasional pancreatitis. Older mice are more resistant, and one rhesus monkey showed no signs of infection by this virus.

Stored serums from patients during the first three or four days of the disease had no demonstrable antibodies against this virus. Serums collected from the same patients about 10 days later completely neutralized the virus. While tests with hyperimmune mouse serums showed an identity of the new virus with Melnick's "Connecticut 5" virus, no antigenic relation was demonstrated with certain other members of the Coxsackie group of viruses.

MIDCENTURY WHITE HOUSE CONFERENCE ON CHILDREN AND YOUTH

The actions taken at the recent Midcentury White House Conference, December 3-7, the fifth to be called at decennial intervals, will take root in the states and their communities to mold a new understanding of the influences that affect the healthy personality development of our children and youth. After 35 work groups, 30 panel discussions and seven general sessions, the 6,000 conferees adopted 201 statements of findings developed by the work groups, 66 recommendations promulgated by the work groups and screened through a special recommendations committee, a Pledge to Children, similar to the Children's Charter of 1930, and a Resolution on a Follow-up Program. Comparatively little of this material is concerned with medical care or even with health service as such. This little will be acceptable to most physicians and is not out of line with medical society policy. Most of the recommendations are concerned with the preservice and in-service training of professional personnel in all fields dealing with the developmental phases of childhood, parent education, agency responsibility, economics, education, social work, recreation, religion, the problems associated with war and the problems of minority groups.

The most important recommendations concern the continuing character of the program initiated by this conference. It has been recommended "that community groups and community leaders reexamine their attitude and procedures and make appropriate adaptations and changes . . . that to insure proper assessment, creative planning and appropriate action with respect to meeting the needs of children and youth, communities develop broad community interests, obtain the broadest possible community sponsorship, obtain necessary technical assistance, initiate and organize studies and gather facts and interpret the facts and inform the community of their significance." It is stressed that "people as individuals and as groups should be helped to help themselves . . . that greater emphasis be placed by the various professions on bringing the parents into participation in thinking and planning with and for children . . . and that citizen advisory boards and similar groups representative of the community be established for public services as well as private and that every effort be made to enable and secure participation by a cross section of the citizenry."

---

[1] Finn, J. J., Jr.; Weller, T. H., and Morgan, H. R.: Arch. Int. Med. **83**: 305 (March) 1949.

[2] Weller, T. H.; Enders, J. F.; Buckingham, M., and Finn, J. J., Jr.: J. Immunol. **65**: 337 (Sept.) 1950.

[3] Curnen, E. C.; Shaw, E. W., and Melnick, J. L.: J. A. M. A. **141**:894 (Nov. 26) 1949.

Before another year has passed, most states will have had a "little White House Conference" under the leadership of the state delegation that has just participated in the midcentury conference. All state agencies involved in the problems of children and youth will be invited to participate. Here the practicing physician, his local and state medical society, his health department and his voluntary health agencies can do yeoman service for the children and youth in his state and community. Here the physician has the privilege and opportunity to make constructive contributions to the healthy personality development of children and youth. Though a national conference may turn fine phrases and make broad recommendations, it is the citizen in a community who gets the job done, and the physician is such a citizen.

CONFERENCE COMMITTEE ON GRADUATE TRAINING IN SURGERY

In this issue is an announcement (page 1503) of the establishment of the Conference Committee on Graduate Training in Surgery, representing the Council on Medical Education and Hospitals of the American Medical Association, the American Board of Surgery and the American College of Surgeons. The establishment of the Conference Committee on Graduate Training in Surgery is the result of negotiations conducted over a two year period by the Board of Trustees, the Board of Regents of the College of Surgeons and the American Board of Surgery. At the Annual Session in San Francisco, the Board of Trustees approved the principles under which the Conference Committee was to be organized. Since these principles had previously been approved by the governing bodies of the other two organizations, the Committee received official status at that time.

The purposes of the Committee are to formulate uniform standards for residency training in surgery, to sponsor a single inspection service for hospitals offering such training and to approve and publish a list of acceptable residency programs. The first such list, approved by all three participating organizations, appears in this issue.

The uniform set of standards for evaluation of residency programs in surgery has already been approved by the three agencies, as published in the June 1950 Revisions of the Essentials of Approved Residencies and Fellowships. Since the establishment of the Conference Committee, field surveys of hospitals applying for approval of residency programs in surgery have been made by representatives of the Council's staff. This collaborative effort, eliminating as it does differing requirements for approval, as well as a duplication of work in inspection of hospitals conducting programs in surgery, on the part of the three agencies concerned should be generally welcomed. It is to be hoped that the pattern established in approving residencies in this specialty will be adopted in other areas of residency training, with similar beneficial results.

TULAREMIA PROPHYLAXIS

Reports of tularemia among laboratory workers have indicated a high incidence of infection due to Pasteurella tularensis approaching 100 per cent.[1] To avoid this danger prophylactic vaccination has been suggested.[2] The efficiency of such vaccination has been tested by Foshay[3] and associates of Camp Detrick, Maryland.

Two vaccines were tested: (*a*) a phenolized broth culture of P. tularensis and (*b*) an acetone-extracted vaccine of the same organism. In a preliminary test 0.5 cc. of one vaccine was given subcutaneously to 15 unselected subjects. Three suffered severe systemic reactions necessitating hospitalization. Subsequent study of serums drawn from them before vaccination showed that all three had circulating agglutinins for P. tularensis. All had been exposed to possible tularemia infection in the past.

In order to prevent additional severe reactions, prevaccination skin reactions and agglutinin titers were determined for each prospective subject. Those with positive skin reactions and high agglutinin titers were excluded. Eight hundred and nine subjects with negative reactions were then given one or more prophylactic injections. The toxic effects were no more than would be anticipated from the use of typhoid vaccine. Among those vacinated were 163 laboratory workers. Of these, 72 handled cultures or performed necropsies on infected animals. The remaining 91 washed glassware or did janitor service or maintenance repair.

Of the 72 vaccinated subjects, with maximum daily exposure, 22 (30.6 per cent) subsequently acquired laboratory infections with P. tularensis. This is approximately one-third the expected incidence among unvaccinated laboratory personnel under similar conditions of exposure. Among the 91 with less exposure only one acquired primary tularemia. The authors conclude from these data that, with precautions to exclude hypersensitive persons, prophylactic vaccination should be carried out on all those exposed to tularemia as an occupational or recreational hazard.

---

[1] Lake, G. C., and Francis, E.: Pub. Health Rep. **37**: 392, 1922. Parker, R. R., and Spencer, R. R.: Pub. Health Rep. **41**: 1341, 1926. Weilbaecher, J. O., and Moss, E. S.: J. Lab. & Clin. Med. **24**: 34, 1938.

[2] Foshay, L.: Am. J. Clin. Path. **2**: 7, 1932. Foshay, L.; Hesselbrock, W. H.; Witte burg, H. J., and Rodenberg, A. H.: Am. J. Pub. Health **32**: 1131, 1942.

[3] Kadull, P. J.; Reames, H. R.; Coriell, L. L., and Foshay, L.: J. Immunol. **65**: 425 (Oct.) 1950.

ORGANIZATION SECTION

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE CLINICAL SESSION IN CLEVELAND, OHIO, DECEMBER 5-8, 1950

The actions of the House of Delegates at the Cleveland Session are herewith abstracted so that the readers may have this information in digest form. The complete proceedings will be made available, as in the past, in a booklet, which will be sent to all the members of the House of Delegates and officers of the American Medical Association by the Secretary. This booklet will not be available for several weeks.—Ed.

General Practitioner of the Year

The House of Delegates had before it nominations of Dr. Jim Camp, Pecos, Texas, Dr. Dean Sherwood Luce, Canton, Mass., and Dr. John William Strange, Loogootee, Ind. On a second ballot, the House elected Dr. Dean Sherwood Luce of Canton, Mass., the General Practitioner of the year.

Address of Speaker

The Speaker presented the following address:

Mr. Speaker and Members of the House of Delegates of the American Medical Association:

Slightly less than six months ago this House met at San Francisco. Perhaps no previous legislative session in the history of this body approached either the volume or variety of significant actions taken. The few months that have elapsed since June 30 last have also seen evidences of the trend away from the radical road toward socialism and the dissolution of our liberties and the American Way of Life. But, Gentlemen, the victory is by no means won. I must again, as previously, warn you that while we have won signal victories in stemming frontal attack, we still face more or less insidious flank movements which, if successful, can and may prepare the way for ultimate regimentation and enslavement.

The House of Delegates, in the name of the American physicians for whom it speaks and acts, bears the full responsibility for defending the American people against any and all threats to the provision of the highest quality of service Medicine can provide.

The reports of the Board of Trustees, officers and councils as already published, and probably augmented by supplementary reports are ample evidence of the magnitude of the problems with which organized medicine most concerns itself. It is obvious to me that in recent years each session of this House finds itself facing more and increasingly complex problems. This will be no exception. In order, then, to give your fullest and best efforts at reaching sound solutions with the limited time available, consideration must be given to conservation of time, energy and orderly procedure.

For the benefit of those delegates serving for the first time and to refresh the memories of others, let me review briefly some details of procedure. May I do this categorically, for brevity's sake.

1. Have all formal resolutions typed in proper form, with adequate copies. A staff of typists is at your service.

2. When addressing the chair or House, announce clearly your name, the state or territorial association, the scientific section or government service you represent.

3. In presenting resolutions, please omit reading the so-called "whereases," but read carefully the resolutions to be acted on. The reasons and arguments for the resolutions can and must be read in the reference committees.

4. Attend the reference committee hearings to plead your cause and to assist the committee in reaching conclusions. Full and exhaustive discussions should take place in the reference committee rooms. It is as much the delegates' responsibility to attend reference committee hearings as it is for them to be seated in the House during its deliberations.

May I take this opportunity to express to the House of Delegates my personal satisfaction at having my right bower, your Vice Speaker, Dr. Reuling, back with me.

I am grieved to announce to you that my predecessor, Dr. Roy Fouts, is reported desperately ill, and I hope the House will extend to him our sincere wishes for recovery.

It is imperative that the business of this session be concluded by noon on Thursday. This is in order to permit a joint session of the House, the Coordinating Committee for the National Education Campaign and the "Committee of 53" for the purpose of receiving a communication which is of profound and far reaching significance.

The Speaker then read the names of the members of the Reference Committees.

Report of Reference Committee on Reports of Officers

The Reference Committee on Reports of Officers presented the following report, which was adopted:

Your committee wishes to commend the Speaker for the conciseness and accuracy of his address, the contents of which met with the full accord of the reference committee. It finds itself in complete agreement with the Speaker's statement to the effect that we must continue our fight against compulsory health insurance unabated.

It wishes to commend the Speaker further for his clear-cut instructions to the delegates giving them the details of the procedure to be followed so that there will be a unanimity in the work to be done.

Your committee cannot dismiss the Address of the Speaker without taking this opportunity to commend him highly for his efficiency, his impartiality, his fairness and his patience in conducting the affairs of this body.

Address of President, Dr. Elmer L. Henderson

President Elmer L. Henderson presented an address (see Journal of the American Medical Association, Dec. 9, 1950, pages 1268-1269) and the Reference Committee on Reports of Officers, to which it was referred, reported as follows and its report was adopted by the House:

The Address of the President to this House of Delegates delivered on December 5 was in all ways characteristic of the manner in which our leader operates. His report was brief, concise and factual.

Your committee concurs with his statement regarding the value of our advertising campaign which campaign "marked the first time in the history of the United States that any profession, business or industry under government attack has been successful in rallying nationwide advertising support from thousands of unrelated groups, companies and individuals."

It feels that the 65,000 new-won friends of our profession will prove of great benefit to us, and that we can see a direct evidence of some of these benefits in the splendid articles now appearing in the Cleveland papers as well as those contributed by the press associations.

As our President states, the election results last month were "heartening and reassuring to the medical profession." Your committee adds to his its "praise and commendation for all doctors regardless of their party affiliation who as American citizens played their rightful role in public affairs and who fought for their convictions at the polls."

Your committee noted with regret the absence in the President's Address of any reference to the innovation of "The President's Page" in The Journal of the American Medical Association. It feels that this page has the potentiality for great good and that it is an excellent means of direct contact between our President and the individual members of this organization. Your committee is of the opinion that it has wide public relations opportunities and strongly recommends that "The President's Page" be continued.

Report of Secretary

The Reference Committee on Reports of Board of Trustees and Secretary, to which the Report of the Secretary (see THE JOURNAL, Oct. 21, 1950, pages 632-633) was referred, approved this report and was of the opinion that the service rendered by the Secretary should receive an expression of appreciation from the House.

Report of Board of Trustees

The Reference Committee *on Reports of Board of Trustees* and Secretary, to which the Report of the Board of Trustees (THE JOURNAL, Oct. 21, 1950, pages 633-663) was referred with certain exceptions, took actions as follows, which were adopted.

The following reports, included in the Report of the Board of Trustees, were not considered by this committee because they were sent to other reference committees by the Speaker: Matter of Free Choice of a Physician; Hospital Standardization; Report of the Washington Office; Report of the Assistant to the Manager, Department of Public Relations; Report of the Council on Industrial Health; Report of the Council on National Emergency Medical Service; Report of the Committee on Legislation; Report of the Committee on Blood Banks, and Report of the Committee on Rural Health.

Matters Referred to the Board of Trustees by the House of Delegates

Your committee approves the action of the Board on matters that had been referred to it and reported on by the Board including Quality of Medical Care in the National Health Program; Resolution on Appropriation for Expenses of Section Delegates; Resolution on Costs of Medical Care; Resolution on Multiplicity of Meetings of Councils of American Medical Association; Resolution on Pilot Survey of Practitioners of So-Called Healing Arts; Resolution on Medical Care of Civilian Employees of Armed Forces; Resolution on Council on Federal Medical Services; Twelve Point Program, and Resolution from Section on Diseases of the Chest on Tuberculosis Among Indians.

The actions of the Board of Trustees on Dues, Entertainment of Foreign Guests, Place of 1952 Clinical Session, Student American Medical Association, Investment Policy, The Journal and Special Journals, Today's Health, Standard Nomenclature of Diseases and Operations, American Medical Directory, Library, Quarterly Cumulative Index Medicus and Report of State Journal Advertising Bureau and the Reports of Council on Pharmacy and Chemistry, Laboratories, Council on Physical Medicine and Rehabilitation and Council on Foods and Nutrition, Report of Bureau of Investigation, Report of Bureau of Legal Medicine and Legislation, Report of Bureau of Health Education, Report of Bureau of Exhibits and the Report of the Bureau of Medical Economic Research were approved by the committee and its report was adopted by the House.

Report of Washington Office

The Speaker referred the Report of the Washington Office in the Report of the Board of Trustees, (see THE JOURNAL, Oct. 21, 1950, pages 637-638) to the Reference Committee on Legislation and Public Relations, which presented the following report which was adopted:

Your committee notes with satisfaction the substantial expansion of this facility and that the many services rendered by this office have been received with interest by the profession. It particularly commends the interesting style used in the Bulletin and Capitol Clinic. It is obvious to your committee that this office has played an important role in reviewing legislation, supplying material to members of Congress, and also arranging for hearings on matters of interest to the medical profession. This activity continues to be of the utmost importance. It is interesting to note that several bills, including the Doctor Draft Law, favored by your Association have been enacted into law and that not a single bill opposed by American medicine has passed.

Report of Assistant to General Manager, Department of Public Relations

The Speaker referred the Report of the Assistant to the General Manager in the Report of the Board of Trustees (see THE JOURNAL, Oct. 21, 1950, pages 638-641) to the Reference Committee on Legislation and Public Relations, which reported as follows and its report was adopted:

In accordance with the expressed policy of the Association, your committee notes that the Department of Public Relations has greatly increased its activities during the past year and particularly would like to point to the establishment of excellent press relations which have included fine coverage of meetings such as the San Francisco Session, the World Medical Association and rural health. The spread of the various news services to even smaller newspapers is commendable. The cultivation of contacts with key organizations has done much to obtain the good will of these groups and this should be further explored.

Report of Council on Industrial Health

The Speaker referred the Report of the Council on Industrial Health in the Report of the Board of Trustees (see THE JOURNAL, Oct. 21, 1950, pages 648-649) to the Reference Committee on Industrial Health, which reported as follows and the report was adopted:

1. Civil Defense: Your committee welcomes the reactivation of the Committee and Consultants on the Industrial Medical Aspects of Civil Defense and urges that this group assume leadership in promoting the four subjects mentioned in this report. This work should go hand in hand with the activities of the Council on National Emergency Medical Service and with all government agencies affected.

2. Public Relations: As was reported in previous recommendations of the House of Delegates, opposition from certain labor leaders seems to be definitely an attempt to squeeze a compromise from the American Medical Association on other broad policies. Your committee recommends the effort to effect a joint committee composed of management, labor and American Medical Association, on health in industry program be continued in spite of setbacks from labor groups.

3. Multiphasic Screening: The Council has presented a seven-point program that is recommended for acceptance by the House of Delegates as a general statement of policy on this subject. Your committee strongly advises that any broad statement of policy of the American Medical Association on any subject be scrutinized thoroughly and be issued only when it would be a strengthening part of our entire program. Here we have a subject that is being pushed by those who believe in continued advance of social security programs by surveys of entire areas, as well as groups in industry. Your committee certainly favors physical examinations of employed groups by family doctors and industrial surgeons, and the use of statistical information obtained for bettering health, accident prevention and plant sanitation. On the other hand, screening by government agencies has developed into a springboard from which chain reactions emanate. The figures from group surveys have been followed by requests for appropriations to institute treatments or further study. This appropriation automatically recognizes and sets up another Social Security sub-group to carry out recommendations founded on this original survey findings. In a case in point, a survey costing thousands dug up six patients. A follow-up appropriation was requested. Your committee recommends that the subject of mass health surveys, either in industry or otherwise, be deleted from this report, as it is not a problem of industry in itself. General health and undiscovered pathology is the background of general health of the nation and should be the business of the family doctors rather than outside group doctors. Your committee recommends that in place of the paragraph deleted, the following be inserted: "Your committee recommends that industrial physicians continue their program of careful examinations of those in industry and the continued referral of those with coincidental disease to insure proper follow-up cure and assignment to suitable occupations of individuals with residual impairment.

4. Corporate Practice: The application of the principles of the Hess report to industrial practice is being well considered by the Bureau of Legal Medicine and Legislation. Its report is not complete at this time.

5. Professional Relations: Your committee compliments the Council on this part of the report, showing as it does the excellent cooperation and understanding that is being used with ancillary groups in industry and industrial health.

6. Industrial Nursing: More time is needed to cooperate with interested groups. The differences in state laws regarding the practice of nursing has made continued study necessary by the Bureau of Legal Medicine and Legislation before a policy acceptable to all concerned can be obtained.

7. First Aid Training, Accident Prevention, Workmen's Compensation: These have been dealt with in an exceedingly satisfactory manner and your committee commends this part of the report.

8. Industrial Health in England: Comments on this were short, and because of the visit of several Council members to England and the direct knowledge obtained your committee recommends that this subject be supplemented by a more detailed report with personal opinions from the Council.

9. Scientific Development and Education: Your committee commends the Council on the work accomplished and urges that the ideas expressed be followed up and the two committees named be activated as soon as possible.

Your committee wishes to call attention to the arduous and intelligent work done by this Council and congratulates the members and secretary on a job well done.

Report of Council on National Emergency Medical Service

The Speaker referred the Report of the Council on National Emergency Medical Service in the Report of the Board of Trustees (see THE JOURNAL, Oct. 21, 1950, pages 649-651) to the Reference Committee on Emergency Medical Service, which reported as follows and the report was adopted:

The committee is in full agreement with the Report of the Council on National Emergency Medical Service. Its concise report covers every essential detail necessary to the implementation of a Civil Defense program and procurement of medical officers for the armed services. In addition and as a further aid to the economical utilization of the limited number of physicians available to the nation at this time, the council has recommended that the American Medical Association urge that reserve medical officers not on active duty be utilized to the fullest extent to complete and execute a single final type physical examination of inductees, recruits and reservists that is acceptable to the armed forces, with point accreditation under public law 510 of the Eightieth Congress. It is understood that steps have already been taken by Secretary of Defense in this regard and that the Secretary of Defense has been commended for his action in the matter by the Board of Trustees.

Your committee feels that civilian defense will be with us for a long time and agrees with the report that the medical profession must exert a forceful, dynamic leadership in the civil defense program of the nation at national, state and local levels. It would therefore make the following recommendations: (1) that each of the state and territorial associations seek adequate representation on civil defense advisory committees at all levels of government; (2) that the American Medical Association request appointment of an advisory committee of civilian physicians in the new Civil Defense Administration; (3) that a copy of the report of the Council on National Emergency Medical Service be sent to secretaries of state and territorial associations and to the chairman of the Emergency Medical Service Committee in each state; (4) that the two remaining constituent associations without an Emergency Medical Service Committee be urged to appoint such a committee without delay. All other constituent associations have such a committee, but many are without a complete program; (5) that the Council on National Emergency Medical Service and the Committee on Blood Banks have some appropriate space in THE JOURNAL, so that information regarding the actions and recommendations of their respective committees be brought to the attention of our members and the various Emergency Medical Service Committees as promptly as possible. Your committee believes this would be a valuable means of keeping all informed of the latest developments in their programs. This recommendation does not imply any criticism of the Editor of THE JOURNAL in relation to publication of news of these matters in the past, but it feels that if the members knew that information relating to civil defense, blood bank and procurement of officers for the armed services was to be placed in some part of THE JOURNAL with a leading heading, it would help in the early dissemination of this information, and (6) that the Council on National Emergency Medical Service urge the state emergency committees in all the constituent organizations to complete their programs without further delay if they have not already done so, and stress the importance of their work in the over-all civil defense program.

Some of the states have already enacted a state civil defense law. Many others will probably do so in the near future and our state medical emergency committees should be active participants in the state civil defense commissions where such laws are enacted.

Dr. Alfred S. Hartwell, delegate from Hawaii, gave to the committee a most excellent booklet on Burn Therapy. It is the most complete treatise on burn therapy that your committee has seen, and it is submitting it to the Council on National Emergency Medical Service.

Report of Committee on Legislation

The Speaker referred the Report of the Committee on Legislation (see THE JOURNAL, Oct. 21, 1950, page 661) to the Reference Committee on Legislation and Public Relations, which reported as follows and the report was adopted:

The work of the Committee on Legislation covers a small section of the Report of the Board of Trustees, but it is obvious that this committee has spent much time in consideration of many bills and the members should be particularly commended for this work. Your committee wishes to note the excellence of the presentation of those who represented the American Medical Association before congressional committees and to state its appreciation of their competent services.

Report of Committee on Rural Health

The Speaker referred the Report of the Committee on Rural Health in the Report of the Board of Trustees (see THE JOURNAL, Oct. 21, 1950, pages 661-662) to the Reference Committee on Hygiene and Public Health, which reported as follows, and the report was adopted:

The committee considers the solution of the rural health problem is gradually being achieved through cooperative community effort. It gives credit to progress made, to the factors which have developed from the deliberations of the four National Rural Health Conferences, the most important being:

1. State and Local Public Health Services for general community hygiene; communicable disease control; public health nursing; well baby conferences and clinics.
2. Utilization of the Hill-Burton Hospital Construction Act in interested areas.
3. Interest of the medical profession and local organizations in provision of scholarships for medical students and nurses who may agree to return to a rural area to practice.
4. Building a better and more productive community and a better place in which to live, through agricultural school extension services.
5. Encouragement by Parent-Teacher Associations of preschool and school health examinations and immunizations; and profiting to a greater extent from the educational programs of voluntary health agencies—tuberculosis, poliomyelitis, cancer, heart and other foundations.
6. Greater participation in voluntary prepaid medical and hospital care plans; in such services offered by many farm groups; and development of plans to include the medically indigent and low income farmer.
7. Combined efforts of all groups in the community, to promote state and county health councils, and implement the activities of county health units in accord with recommendations of the Reference Committee on Hygiene and Public Health in its report at the St. Louis Session in 1948.

More than 750 farm and health leaders participated in the 1950 conferences. The committee plans an annual meeting to expedite the objectives just outlined, with emphasis on the formation of community health councils. The services of a secretary and a field director have widened the scope of activity, the latter having visited 23 states in recent months. Increasing interest has been indicated by the Extension Service, Farm

Bureau, National Milk Producers Association, National Grange and similar groups. A gratifying result has been acceptance of appointment as advisory members of Berry H. Akers, Editor of "The Farmer" and Paul Johnson, Editor of the "Prairie Farmer."

The Reference Committee on Hygiene and Public Health is in full accord with the objectives of the Committee on Rural Health and commends its accomplishments. No specific requests or recommendations requiring action by the House are presented by your committee.

Supplementary Report of Board of Trustees on Recommendation on Resolution on Free Choice of Physicians for Federal Employees

The following recommendation was presented by Dr. Louis H. Bauer, Chairman, Board of Trustees, and referred to the Reference Committee on Industrial Health:

Since the Handbook went to press, a report prepared by the Committee on Consultants on Workmen's Compensation has been received by the Council on Industrial Health. This report is to the effect that in the opinion of the Committee on Consultants the moment is not a propitious one to press for amendments to the Federal Employees' Compensation Act to provide for free choice of physicians, as requested in the resolution presented to the House of Delegates by Dr. J. Stanley Kenney of New York at the Atlantic City Session in June 1949.

Report of Reference Committee on Industrial Health

The reference committee presented the following report, which was adopted:

The resolution on free choice of physicians for federal employees was originally introduced by Dr. J. Stanley Kenney of New York and referred first to the Board of Trustees, then to the Committee on Consultants on Workmen's Compensation of the Council on Industrial Health and finally to your committee.

Your committee does not recommend the acceptance of the report given by the Committee of the Council on Industrial Health, but recommends the adoption of the original resolution by Dr. Kenney, which is as follows:

WHEREAS, It is the custom of the United States Employees Compensation Commission to appoint designated surgeons in all localities where a U. S. Marine Hospital or Veterans Facility is not available for the care and treatment of injured employees; and

WHEREAS, All injured employees are directed to one of these designated surgeons when injured in line of duty; and

WHEREAS, Certain other branches of the federal government, namely, the Veterans Facilities, have recognized the free choice of physician plan in home treatment of veterans; and

WHEREAS, All injured employees in New York state enjoy this privilege under the New York State Compensation Law; now therefore be it

Resolved, That the Board of Trustees of the American Medical Association is hereby requested to seek amendment to the Federal Law on Workmen's Compensation to the effect that all covered federal employees be granted free choice of physician for injuries sustained in line of duty.

Supplementary Report of Board of Trustees on Clinical Sessions

The following Report of the Board of Trustees on Clinical Sessions was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

1953 Clinical Session: Invitations for the 1953 Clinical Session were received from the following cities: Atlantic City, Boston, Los Angeles, Miami, Minneapolis and St. Louis. The Board of Trustees selected St. Louis, but the exact date has not as yet been set.

Date for Denver Session: The first week in December has been selected for the 1952 Clinical Session which is to be held in Denver.

Continuation of Clinical Session: The Board of Trustees would like to have an expression from the House of Delegates as to whether it feels that the clinical sessions of the Association are worth while and should be continued.

Report of Reference Committee on Reports of Board of Trustees and Secretary

The reference committee reported as follows and the report was adopted:

Article 2 of the Constitution of the American Medical Association states "The objects of the Association are to promote the science and art of medicine and the betterment of public health." Your committee heard many witnesses regarding this subject, including officers, members of the Board of Trustees, the Council on Scientific Assembly and others. It is the opinion of your committee that in view of Article 2 of the Constitution, which essentially states that the primary purpose of the American Medical Association is to promote the science of medicine, and after noting the results of a survey made following the St. Louis Clinical Session and the fact that there has been increasing attendance at these sessions, the Clinical Sessions should be continued. It suggests that the Board of Trustees and the Council on Scientific Assembly consult with the officers of the Section on General Practice for advice regarding possible continued improvement in the scientific program. It approves of the action of the Board of Trustees in this supplementary report regarding the 1953 Clinical Session and the date for the Denver Session.

Since it has been brought to the attention of the committee that several delegates at this and previous clinical sessions have arranged transportation home in advance of adjournment of the House of Delegates, your committee hopes that in the future the Board of Trustees will specify the dates when it is anticipated the House will meet so that there can be no misunderstanding on the part of the delegates.

Supplementary Report of Board of Trustees on Hospital Standardization

Dr. Louis H. Bauer, Chairman, Board of Trustees, presented the following report, which was referred to the Reference Committee on Medical Education:

The Board of Trustees appointed a committee to confer with the Board of Regents of the American College of Surgeons and with representatives of the American Hospital Association and the American College of Physicians, with a view to arriving at a satisfactory solution to this problem. At the last meeting of the joint committee, it was suggested to establish a joint commission on hospital standardization to be composed of 18 members representing the four organizations. A rough draft of a proposed constitution and by-laws has been prepared and a copy of it has just been given to the Board of Trustees for study. Negotiations are still going on and much progress has been made. Every effort is being made to reach satisfactory arrangements.

Report of Reference Committee on Medical Education

The reference committee presented the following report, which was adopted:

Your reference committee has given very careful consideration to the statement of the President in his Presidential Address, and to the Supplementary Report of the Board of Trustees in reference to the problem of hospital standardization. Hearings on this report were attended by a large number of members and Fellows, officers and trustees of the American Medical Association, and members of other organizations including executive secretaries and legal representatives.

Your committee appreciates and commends the Board of Trustees on the great amount of effort which has been given to the solution of this problem in the last several months. In June 1950 the Board of Trustees was suddenly faced with a very acute and serious problem which had many implications in regard to the standardization of hospitals. When this problem was presented to the Board of Trustees it seemed almost insurmountable but due to their immediate action and energy great progress has been made toward a satisfactory solution.

After serious consideration of the report and all of the discussion, your committee recommends approval of the action of the Board of Trustees up to this time and also recommends that the study be continued until a satisfactory plan for the standardization of hospitals has been devised.

Supplementary Report of Board of Trustees on Dues

The following report was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

The Board considered the question of the payment of dues in the American Medical Association by physicians who are regarded as hardship cases; that is, those physicians who, for one reason or another, are charged lower local dues and those physicians who can pay local dues but find it a hardship to pay American Medical Association dues, and decided to make the following recommendations to the House of Delegates:

1. If a physician pays only partial dues in his county and state society due to hardship, he will be exempted from payment of American Medical Association dues but will not receive The Journal; this exemption, however, will not be granted except on written recommendation of the secretary of the county or state society that it would be a hardship on the physician to pay the regular dues.

2. If a physician pays full dues in his county and state society, he must pay full dues in the American Medical Association.

Report of Reference Committee on Reports of Board of Trustees and Secretary

The reference committee presented the following report which was adopted:

Your reference committee approves of this report.

Supplementary Report of Board of Trustees on Committee to Study Public Relations

Dr. Louis H. Bauer, Chairman, Board of Trustees, presented the following report which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

The Board of Trustees has appointed a committee to undertake a study of the public relations of the Association and to draft recommendations as to the future course to be pursued. This committee consists of Dr. Gunnar Gundersen, chairman, and Dr. Edwin S. Hamilton, to represent the Board; and Dr. B. R. Kirklin to represent the House of Delegates. It is hoped that a preliminary report will be made at the February meeting of the Board and a final report rendered to the House of Delegates in June 1951.

Report of Reference Committee on Reports of Board of Trustees and Secretary

The reference committee presented the following report which was adopted:

Your reference committee approves the action of the Board of Trustees in appointing this committee.

Report of Committee on Blood Banks

The Speaker referred the following report of the Committee on Blood Banks to the Reference Committee on Emergency Medical Service:

Through its Committee on Blood Banks, the American Medical Association has cooperated with the American National Red Cross in a national blood procurement program. The several actions of the House of Delegates and of the Committee on Blood Banks regarding blood bank matters from June 1947 to August 1950 have been summarized in a report by the committee at its most recent meeting. The report was submitted to the Board of Trustees on Sept. 15, 1950, which approved it and authorized its publication. Copies may be obtained from the Bureau of Medical Economic Research at Association headquarters. This report contains the full text of the agreement reached in Boston by the several interested groups, and the complete text of the letters from the Secretary of Defense and from the National Security Resources Board designating the American National Red Cross as the military and civilian agency in blood bank matters and the letters of acceptance from the American National Red Cross.

The House of Delegates has endorsed the idea of a national blood procurement program under the auspices of the American National Red Cross. As problems have arisen, the American National Red Cross has at different times expressed a desire to solve them and has made specific agreements with the American Medical Association. In these agreements the American National Red Cross accepted liaison with the American Medical Association through the Committee on Blood Banks. It has been agreed that, to insure safety to recipients, the responsibility for technical details must rest on properly trained personnel under the control of local or state medical societies, and that local control must be exercised by the county medical society, which should be the initial contact in the contemplation of inauguration of a new blood bank. No publicity or news releases are to be issued except by mutual consent of the local county medical society and the local chapter of the American National Red Cross. Differences of opinion in establishment or operation of a blood bank in either administrative or technical detail are to be arbitrated at state levels by joint committees from the state medical society and the American National Red Cross. It has been generally agreed that the principle of blood replacement by the patient, his family, his friends or his organizations is sound, and interbank exchange of blood on a unit for unit basis should be encouraged.

On July 11 and 12, 1950, at a meeting in Boston of the Committee on Blood and Blood Derivatives of the American National Red Cross, together with its Medical Advisory Committee on the National Blood Program, there were present, by invitation, representatives of the American Medical Association, the American Hospital Association and the American Association of Blood Banks. The following agreement, drawn up at this meeting, sets forth the relation among these four organizations in peacetime and in the event of a national emergency:

> Representatives of the American Medical Association, American National Red Cross, American Association of Blood Banks and the American Hospital Association have been meeting to aid in the development of the best possible blood transfusion service for physicians, hospitals and patients who use the blood—in fact, in the interest of national unity throughout the country. After carefully considering the information available, these representatives declared that it seemed advisable to cooperate with the National Security Resources Board by, in time of peace, providing for free exchange of blood between the American National Red Cross Regional Blood Centers and blood banks operating under other auspices on a unit for unit basis whenever and wherever it is needed to serve to the best advantage the interest of the community. It seems advisable for such units to be the property of the recipient blood bank to be used in accordance with its usual policy of issuing blood. As a principle, the groups favor making surplus blood available to the American National Red Cross or other agencies processing blood for the purpose of converting it into derivatives for the benefit of the people. By "surplus blood" is meant all blood that is not required for use as whole blood, plasma or any other derivative by the blood bank concerned.
>
> In the event of a disaster or a national emergency, the American National Red Cross, the American Medical Association, the American Hospital Association and the American Association of Blood Banks favor in those communities not served by an American National Red Cross Regional Blood Center the establishment of such a center and/or the use of existing blood bank facilities to procure the necessary amount of blood. The method to be used should be determined in a manner which meets the approval of the county medical society and the local blood banks and hospitals. Furthermore, the operation of the local blood bank facilities for civilian need should not be interfered with by the emergency program so far as consistent with government regulations existing at that time.
>
> There is definitely a need for the use of standardized equipment and methods for the procurement and dispensing of blood; this is imperative in a national emergency and desirable in time of peace. To insure minimum standards all blood banks cooperating in such a procurement program should meet the minimum standards of the National Institutes of Health.

The Committee on Blood Banks heartily approves the agreement reached in Boston and has been notified of approval by the Board of Trustees. The committee recognizes that the *modus operandi* of this agreement will necessitate many adjustments to meet local conditions. From time to time the committee will report to the Board of Trustees plans for implementation of this agreement with the recommendation that they be published. At an early date the American National Red Cross will request the cooperation of a number of cities in the procurement of blood. When a community is thus selected, the professional groups interested will be invited to work out a program of procurement most suitable for that particular community. This group will include the local Red Cross chapter, the county medical society, local hospitals, local blood banks, if any, and probably the local public health officer.

The American National Red Cross has been designated by the Secretary of Defense as the official procurement agency for blood and blood derivatives for the needs of the armed forces, and the National Security Resources Board has similarly designated the American National Red Cross "to accept the responsibility of coordinating a nationwide civil defense blood program for recruitment of donors and collecting, storing, processing, and preparing for shipment of blood and blood derivatives."

All federal agencies designating the American National Red Cross in blood procurement will charge this organization with the responsibility not only of blood procurement but also of securing necessary correlation and cooperation of other agencies interested in blood procurement. The Department of Defense expects to reimburse the American National Red Cross for actual costs incurred in procurement of blood and blood derivatives for the armed forces.

In its study of the blood bank resources of the United States and possessions, the Bureau of Medical Economic Research of the American Medical Association has found that the 34 regional centers of the American National Red Cross issue less than 15 per cent of the blood used as whole blood. The rest is issued by hospital and nonhospital blood banks. Hence the American National Red Cross must rely on the cooperation of the other blood banks which are currently procuring most of the blood. The American National Red Cross believes it can double its output with present centers and equipment.

The Committee on Blood Banks is of the opinion that a large scale emergency blood program, whether regional or national, can be successful only if the American National Red Cross has the willing and wholehearted cooperation of all other agencies in the blood procurement field. It believes that other blood banks can procure emergency blood under the special motivation that would exist and channel it through the American National Red Cross to the official agencies for which it procures. Joint efforts at the regional, state and local levels are indispensable.

The Committee and the American National Red Cross at their meeting on Aug. 13, 1950 agreed to ratify and confirm all previous agreements, including the "Boston Agreement"; that the American National Red Cross encourage its local chapters, on request of a blood bank cooperating in the emergency program, assist in the procurement of donors for the cooperating blood banks; that in event of local disaster, blood requisitioned from local blood banks by the American National Red Cross be entered as a credit to that bank as in interbank exchange, and that the American Medical Association offer its wholehearted cooperation in the National Emergency Blood Program and encourage other interested organizations to offer theirs.

To assure that this cooperative plan of blood procurement be fully effective, the American Medical Association has recommended to the American National Red Cross that the regional, state and local coordinating organizations of the American National Red Cross Blood Program include full and adequate representation of physicians, hospitals, non-Red Cross blood banks and health departments, state and local. It was also recommended that all public relations, publicity and campaign efforts emphasize the cooperative nature of the National Blood Program, listing the names of the cooperating organizations, and in local areas adding the names of the cooperating blood banks and hospitals. The American Medical Association has further recommended to Mr. W. Stuart Symington, Chairman, National Security Resources Board, that the National Security Resources Board's Advisory Committee on National Emergency Blood Program be continued. The American Medical Association has also recommended to the Department of Defense, the National Security Resources Board and the American National Red Cross that, in deriving formulas for cost reimbursement, consideration be given to the necessity of having such formulas applicable to other agencies cooperating in the emergency blood procurement program.

The Board of Trustees has approved the study of the annual costs of accreditation of blood banks and the problem of integrating such a program with the present hospital inspection program of the Council on Medical Education and Hospitals before steps are taken to carry out the action of the House of Delegates on this matter. This study will be made jointly by representatives from the Committee on Blood Banks, the Council on Medical Education and Hospitals and the Bureau of Medical Economic Research.

After consultation with various advisors, the Committee on Blood Banks concluded that mass typing of the general population is costly and inadvisable for technical reasons, including that of hazards to the patient introduced by dependence on such typing. Previous experiences in mass typing have been disturbing rather than reassuring. On the advice of federal officials, the committee stressed the importance of increasing the production of blood substitutes as well as whole blood in the present emergency.

Criticism of the policy expressed in the above paragraph was submitted by Dr. A. C. Ivy, First Vice Chief Deputy, Emergency Medical and Public Health Services, Chicago Civil Defense Organization, in a letter to the Editor of The Journal. Dr. Ivy's letter was referred to Dr. Leonard W. Larson, Chairman of the Committee on Blood Banks of the American Medical Association. Dr. Ivy's letter and Dr. Larson's comment were published in The Journal, October 28, 1950, page 780.

Supplementary Report of the Committee on Bood Banks

Dr. Leonard W. Larson, Chairman, presented the following report, which was referred to the Reference Committee on Emergency Medical Service:

This report is a supplement to the Report of the Committee on Blood Banks.

Events which have transpired since the meeting of the House last June have greatly complicated the committee's efforts to correlate and coordinate blood banking in the United States for the threefold purpose of furnishing an adequate supply of blood for regular civilian needs, for the military establishment and for civilian emergency needs. So far as the procurement of blood is concerned, we are faced at this time with the emergency we have long been planning to meet. The responsibilities placed on the American National Red Cross both by the Department of Defense and by the National Securities Resources Board as indicated in the printed portion of our report have been greatly augmented by the events of the past few weeks and demand the full cooperation of every American agency in any way related to blood procurement. In this cooperation the American Medical Association has a leading part.

The committee would desire to emphasize that at this time the national emergency blood program is and must continue to be a three-pronged activity, each part of which must be developed to keep the whole program in balance. These three parts are (1) the maintenance of supplies of blood and plasma for normal civilian requirements, (2) the furnishing of whole blood and plasma to the Armed Forces of the United States and (3) the development of dispersed reserve supplies of equipment for collecting blood and dispersed reserve supplies of blood plasma for civilian defense.

The Red Cross has been exerting continuous pressure on all of its regional blood centers by increasing their quotas of blood procurement for military emergency needs. While these regional centers will very shortly be procuring much more blood than the stepped up quotas they are now meeting, the American National Red Cross relies on the participation of all other blood procuring agencies in the national emergency blood program.

At a meeting of all participating organizations held in Washington in September, it was agreed that the American National Red Cross should set up in various cities in the United States special defense blood collection centers, and that in the cities so designated local committees of all participating organizations would determine what in the opinion of the local committee was the best method of collecting blood in its city. The committee reemphasizes its previous recommendation that full credit be given in publicity at the local level to all participating organizations and that this recommendation be called to the attention of the new president of the American National Red Cross.

Under the national emergency blood program contractual relationships have been established with all companies equipped to process blood into dried plasma and serum albumen. The capacity of these plants is being expanded and during 1951 the blood requirement will likely strain the facilities and personnel of all existing blood banks in the United States. The first shipment of whole blood to Korea was made on Aug. 25, 1950, and many shipments of type "O" blood have been made since. These have been made possible both through the increased quotas of Red Cross regional blood centers and also through the active participation of many other blood banks, particularly of those located on the West Coast.

The pattern of cooperation in the blood program will vary according to local conditions in the several states. The committee recommends in order to avoid duplication and overlapping of effort and the confusion resulting therefrom, that each state medical society see to it that a state committee on blood banks be established whose function it would be to correlate the elements of the emergency blood program in its state and to see that the blood procured is properly channeled. These committees should include representation from hospitals, blood banks and the Red Cross.

The committee has had the benefit of valuable and helpful information furnished by Drs. Albert E. Heustis, George D. Cummings and J. H. Ahronheim, Col. A. D. Howell of the State of Michigan and Dr. Lamar Soutter of Massachusetts regarding their current and planned programs for public participation in the emergency blood program.

The committee is of the opinion that the most important problem in the blood program facing the American people is the procurement of large amounts of blood and plasma for military and civilian defense purposes and the dispersal of plasma and of blood equipment intended for civilian defense uses to strategic points in the United States and possessions. The American Medical Association at this time urges the President and the Congress of the United States to make available at the earliest possible moment the necessary funds to expedite this program. The Association also urges on all community leaders in the United States that no steps be taken at this time which will divert public attention from the main problem. It is most likely that a complete and fool-proof civil defense program for the United States which would cover all risks could conceivably bankrupt the country; therefore, it is necessary in this field, as in all others, that concentration must be focused on the principal objectives with certain calculated risks.

A system of voluntary accreditation of blood banks should remain among the aims of the American Medical Association. In view of current conditions, however, the committee recommends deferring the question for the present. Meanwhile, blood banks participating in the national emergency blood program should meet, as a minimum, the standards of the National Institutes of Health.

The committee is continuing its statistical study of blood banks to obtain data on capacity and utilization. The special blood bank questionnaire sent in July to all blood banks listed in Bulletin 75 of the Bureau of Medical Economic Research has revealed that, in the event of a grave disaster, the number of donors who can be bled simultaneously can be increased threefold by hospital blood banks and twofold by nonhospital blood banks and Red Cross regional blood centers. (This refers to *present* equipment and personnel and to *simultaneous* bleeding capacity—not to the total amount of blood which could be drawn in one week or one month.) The amount of blood used annually by all hospitals can be estimated again only after analysis of the replies to the questions on blood included in the current hospital questionnaire for 1950 sent by the Council on Medical Education and Hospitals to all registered hospitals. The two analyses will be combined into a single study which should be completed before the next meeting of the House of Delegates.

REPORT OF REFERENCE COMMITTEE ON EMERGENCY MEDICAL SERVICE

The Reference Committee on Emergency Medical Service to which these reports were referred reported as follows and the House adopted its report:

The report of the Committee on Blood Banks and its supplementary report is an outstanding contribution to a subject that is deserving of our most important consideration in the present emergency. A perusal of the reports is indicative of the careful thought and study given the matter.

The report covers in detail the agreement at a meeting in Boston July 11 and 12, 1950, of the Committee on Blood and Blood Derivatives of the American National Red Cross, together with its Medical Advisory Committee on the National Blood Program. At this meeting by invitation were representatives of the American Medical Association, the American Hospital Association and the American Association of Blood Banks. The agreement sets forth the relation among these four organizations in peacetime and in the event of a national emergency. The Committee on Blood Banks approved the agreement reached in Boston, and it has also been approved by the Board of Trustees.

The committee is of the opinion that the most important problem in the blood program at this time is the procurement of large amounts of blood and plasma for military and civilian defense purposes and blood equipment intended for civilian defense uses at strategic points in the United States and its possessions. Your committee concurs in this opinion.

In its supplementary report the committee recommends that a state committee on blood banks be established in each state whose function would be to correlate the elements of the emergency blood program in its state. Your committee approves of this recommendation.

In the opinion of your committee, we are faced with a real emergency. The time for talk is past. The time for action is here. Let us be realistic. The Committee on Blood Banks has told you what must be done. They cannot do it, neither can it be done at 535 North Dearborn Street. What we need is more blood and blood derivatives. This can only be done by expanding existing blood centers and establishing new ones in hospitals and laboratories and training the personnel necessary for this increased program. This can best be done, in our opinion, on the state and local levels with the full cooperation of the American Red Cross and every other American agency in any way related to blood procurement. And speaking of cooperation, your committee thinks it is hardly necessary to call your attention to the leading part the American Medical Association has taken in this movement.

It would therefore recommend (1) that the Board of Trustees, through whatever committee it may designate, strongly urge that a state committee on blood banks be promptly established in all its constituent associations, if not already established; (2) that these committees be advised of the necessity of full cooperation with all other agencies engaged in blood procurement programs; (3) that this state committee on blood banks proceed to develop promptly a blood program, having in mind the statement in the supplementary report that it must be a three-pronged activity, each part of which must be balanced to keep the whole program in balance, and (4) that a copy of the report of the Committee on Blood Banks and of its supplementary report be sent to the secretary of each constituent association for the information of its blood bank committee if in existence or to be established. Your committee trusts that all the delegates will carry back to their associations the information and recommendations of the Committee on Blood Banks and convey to their officers the emergency we are facing and the importance and the necessity of their prompt cooperation in the blood procurement program.

Report of Judicial Council

Dr. E. R. Cunniffe, Chairman, Judicial Council, presented the following report, which was referred to the Reference Committee on Medical Education:

This report will deal with activities of the Judicial Council since the American Medical Association Clinical Session held at Washington in December 1949.

Several meetings have since been held, one on May 5, 1950 in Chicago, several in June in San Francisco and a subsequent meeting on September 29 in Chicago.

The questions presented at these meetings consisted frequently of complaints concerning the ethical conduct of individuals suspected of violating the Principles of Medical Ethics which should first have been considered by the county medical society. Such complaints are frequently referred by the Council back to the component society since they are the only organizations in our federated association with penal powers. An original decision by the Judicial Council in answer to some of these communications would prejudge the accused member and he, as an appellant, would then come for his final hearing to a prejudiced court.

Other questions were answered personally by the chairman, expressing merely his own opinion with the assurance that the subject matter would be submitted to the Judicial Council for its decision at the next meeting.

There were also considered the applications of candidates for Fellowship whose eligibility was questioned. Also those names presented for Honorary or Affiliate Fellowship were considered and recommended for election by the House of Delegates.

The following portion of the report of the Committee on Hospitals and the Practice of Medicine was referred to the Council by the Board of Trustees for opinion:

"If and when a physician is found to be unethical by the proper authorities as established through channels specified in the Constitution and By-Laws, and he is still retained on the staff of any hospital approved for resident or intern training by the Council on Medical Education and Hospitals, it shall be the duty of the Judicial Council to request the Council on Medical Education and Hospitals to show cause as to why that Council should not remove such hospital from the approved list under the assumption that the hospital is just as unfit for the training of young physicians for unethical reasons as it is unfit because it may not or does not have proper filing systems for its laboratory or clinical records."

After due consideration the Council approves this portion of the report, and suggests modification of this section, deleting the words ". . . to show cause why that Council should not remove such hospital from the approved list." The modification would read as follows: "It shall be the duty of the Judicial Council to request conference with the Council on Medical Education and Hospitals on the advisability of removing such hospitals from the approved list."

At the last meeting of the House of Delegates, the following supplementary report of the Committee on Hospitals and the Practice of Medicine was referred to the Judicial Council:

"The Committee believes that if the following pattern were followed the possibility of solving any controversy between physician and hospital would be greatly improved:

"When a physician believes he has a legitimate complaint against hospital management, he should first attempt to solve the difficulty at the staff level. And it is incumbent on the medical staff to assist in arriving at a fair and proper solution.

"If no solution is reached at this level, the physician should appeal to the appropriate committee of his county medical society for advice and assistance. The county medical society committee should develop methods for contacting hospitals, management and boards, as well as local associations representing hospitals, in order that all sides of the controversy may be understood and personality difficulties minimized.

"When a solution seems impossible through the good offices of the county medical society, mechanisms should be available for presentation of the matter to the state medical association of which the physician is a member. Here, again, for the purpose of receiving all available facts and opinions, the state medical association should develop liaison with the state hospital association.

"To facilitate the consideration and mediation of physician-hospital controversies, specific authorization to handle such matters should be given to some committee of both county and state medical societies. In the larger county societies and the state associations this function could be best carried out through a special committee created for just this purpose. It should be the function of such committees to mediate differences in the light of the existing state laws, the Principles of Medical Ethics and the best interests of the patients.

"The services of the Correlating Committee on Extension of Hospitals and Other Facilities of the Council on Medical Service, working with a similar committee of the American Hospital Association, should be available to study and assist in solving physician-hospital problems which seem unsolvable at the local and state levels. For formal opinion or adjudication, however, the portfolio should be presented to the Judicial Council."

The Judicial Council approves of this report and feels its recommendations should be accepted by all state associations and component societies and steps taken to expedite the carrying out of the provisions of this program. The Council note with satisfaction that several such committees have already been appointed by several state associations and component societies.

Members of the Judicial Council particularly enjoy the not infrequent requests that are received from other professional groups for advice or for copies of the Principles of Medical Ethics as a guide to the development of similar guidance in professional conduct.

Students taking ethics for the subject of a thesis ask for copies of the booklet of Principles and seek our advice on related subjects. The Principles of Medical Ethics are acknowledged to be the highest of any profession except that of the clergy, whose principles are derived from the tenets of their individual religion. All these should lead to united effort to maintain our exalted ethical standards.

Respectfully submitted,

Edward R. Cunniffe, Chairman.
Walter F. Donaldson.
H. L. Pearson Jr.
J. B. Lukins.
Louis A. Buie.
George F. Lull, ex officio.

Report of Reference Committee on Medical Education

The reference committee presented the following report, which was adopted:

After due consideration your reference committee recommends that the report of the Judicial Council be approved and further recommends that the House of Delegates concur in its recommendations.

Supplementary Report of Board of Trustees on Federal Aid to Medical Education

Dr. Louis H. Bauer, Chairman, Board of Trustees, presented the following report, which was referred to the Reference Committee on Medical Education:

The American Medical Association has been asked whether it would modify its stand on federal aid to medical education for the period of the emergency.

The following points should be borne in mind:

1. All medical schools are at present operating at or nearly at capacity. Enrolment in medical schools is at an all time high.

2. Any further increase in enrolment can be accomplished only in one of two ways: (*a*) by increasing physical facilities and teaching personnel or, (*b*) by decreasing standards in medical education.

3. Even if increased enrolment were now possible, it would be four years before any additional doctors could graduate. To increase enrolment by increasing physical facilities will require considerably longer than the four years above mentioned.

4. Therefore, it is doubtful if the emergency can be helped no matter what procedure is adopted and the problem should be considered rather from its long range aspect.

The attitude of the American Medical Association on federal aid to medical education has been misconstrued and often deliberately so.

The American Medical Association would not oppose federal aid to medical education if it could be assured of two things: First, that any legislation would guarantee absolute freedom of medical education from government control; second, that all sources of private support for medical education have been exhausted. Up to the present, neither of these is assured.

The American Medical Association recognizes that some medical schools are now in financial difficulties, and in view of the national emergency may face greater ones. The extent of these financial difficulties has not been made clear. Recognizing the greater or less need for financial assistance to medical schools beyond what they are now receiving, the American Medical Association nevertheless believes that further efforts should be made to obtain these funds from private sources. Furthermore, the Association is willing to lend its support to a campaign for raising funds for medical education among the professions, industry and labor. It urges that such an all out drive be started immediately.

In formulating any plan for emergency medical service, consideration should be given to several factors: 1. Economical use of medical man power by establishing and maintaining a proper balance between military and civilian needs; 2. Provision for rotation of doctors in the armed services so as to equalize the burden on the individual and disrupt as little as possible the teaching faculties and thus allow for a continuous progression of trained specialists and practitioners into the active professions; 3. The flow of properly trained students into the medical schools should be continued at the present or a greater level; 4. Postgraduate instruction should be maintained or increased so as to provide the number of doctors required not only in specialties but in general practice.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION

The reference committee presented the following report which was adopted:

Your reference committee recommends approval of this report.

Report of Interim Committee on Constitution and By-Laws

Dr. Joseph D. McCarthy, Chairman, presented the following report:

Mr. Speaker and Members of the House of Delegates:

RESOLUTION ON AMENDMENTS TO CONSTITUTION AND BY-LAWS FOR ADDITION OF COMMITTEE ON CONSTITUTION AND BY-LAWS TO STANDING COMMITTEES

WHEREAS, The Interim Committee on Constitution and By-Laws believes that it is important that the American Medical Association have a permanent Committee on Constitution and By-Laws so that the Constitution and By-Laws of the American Medical Association may be kept up to date and that suggestions and resolutions which would amend the Constitution and By-Laws may be given careful study; and

WHEREAS, The Interim Committee on Constitution and By-Laws is unanimously of the opinion that a special committee should be provided which would act during the interim between meetings of the House of Delegates of the American Medical Association as a fact finding and advisory committee relative to matters pertaining to the Constitution and By-Laws so that the House of Delegates would have the benefit of its research; therefore be it

Resolved, That Chapter X of the By-Laws, Section 4(B) be amended to include a new final paragraph which will read as follows:

> The standing Committee on Constitution and By-Laws shall consist of five Member or Service Fellows elected by the House of Delegates on nomination of the Board of Trustees for terms of five years, so arranged that at each annual session the term of one member expires. At the 1951 annual session one member shall be elected for a term of one year, one for two years, one for three years, one for four years and one for five years. The President, Secretary, Assistant Secretary, a member of the Board of Trustees and the Speaker and Vice Speaker of the House of Delegates shall be ex officio members of this committee without the right to vote.

and to include a new paragraph (5) under (I) DUTIES, as follows:

> This committee shall be a fact finding and advisory committee on matters pertaining to the Constitution and By-Laws. It shall report to the House of Delegates.

SINGLE MEMBERSHIP CLASSIFICATION

The Interim Committee on Constitution and By-Laws was instructed by the House of Delegates during the 1950 Annual Session to study the merits of proposals made by some to amend the Constitution and By-Laws whereby it would provide for one general classification of members. This single membership classification would entitle all members to all rights and privileges now accorded to members and Fellows.

Your committee has deliberated this question at length, each member stating his reasons in writing for his ultimate conclusions.

The opinions expressed by the individual members unanimously oppose any amendment to the Constitution and By-Laws which would change the present distinction between a member and a Fellow.

The Interim Committee on Constitution and By-Laws recommends to the House of Delegates that the membership and Fellowship classification provided for in the 1950 edition of the Constitution and By-Laws be retained.

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

The following proposed amendments to the Constitution and By-Laws have been given serious consideration by your committee, which unanimously recommends their adoption.

The amendments to the Constitution will lay over until the next meeting of the House of Delegates. The amendments to the By-Laws, following the recommendations of the Reference Committee on Amendments to the Constitution and By-Laws, can be adopted at this session.

CONSTITUTION

1. Amend Article 5, Section 1 (B) to read: "Associate Members.—Associate membership in the American Medical Association shall be limited to those members of constituent associations who are not active members of the American Medical Association or the constituent association and who hold the degree of Doctor of Medicine or Bachelor of Medicine, subject to the provisions of the By-Laws."

Amend Article 5, Section 1 by adding new paragraph: "(C) A member shall retain his active or associate membership as long as he complies with the provisions of the Constitution and By-Laws and with the Principles of Medical Ethics of the American Medical Association."

2. Amend the last sentence of Article 6, Section 2 so that it will read: "The general officers, the past Presidents of the Association, the General Manager, the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the chairmen of the several standing committees and two delegates elected by the Student American Medical Association shall be ex officio members of the House of Delegates without the right to vote."

3. Amend the first sentence of Article 6, Section 3, so that it will read: "The number of delegates from the constituent associations shall be proportional to the number of dues paying active members of the American Medical Association in the respective constituent associations as provided in the By-Laws."

4. Amend Article 11 so that the first sentence will read: "Funds may be raised by equal annual dues or by assessment on each of the active members on recommendation by the Board of Trustees and after approval by the House of Delegates."

BY-LAWS

5. Amend Division One, Chapter II, Section 2, the first sentence, so that it will read: "Sec. 2. Dues.—Annual dues may be prescribed for the ensuing calendar year in an amount recommended by the Board of Trustees and approved by the House of Delegates."

and amend the same paragraph by inserting the following new third sentence, "The Board of Trustees may excuse a member from paying dues when it is deemed advisable, provided that he is excused from the payment of full dues by his component society and constituent association."

and further amend the last sentence of the same paragraph by deleting the words, "such subscription to begin Jan. 1, 1951," so that the sentence will read: "Dues shall include subscription to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION."

Amend the same Section 2 of Chapter II, so that it shall read: "An active member is delinquent if his dues are not paid by December 31 of the year for which dues are prescribed and shall forfeit his active membership in the American Medical Association if he fails to pay the delinquent dues within 30 days after the notice of his delinquency has been mailed by the Secretary of the American Medical Association to his last known address."

6. Amend Division Two, Chapter IV, Section 2, the fifth paragraph, so that the first two sentences will read: "A Member Fellow shall pay annual Fellowship dues which shall be determined by the Board of Trustees and announced in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. It shall be the privilege of a Member Fellow to subscribe for any other scientific journal published by the Association in lieu of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION to which he is entitled as a member."

and further amend Division Two, Chapter IV, Section 2, so that the last sentence of the fifth paragraph becomes a new paragraph.

7. Amend Division Two, Chapter IV, Section 2 (C), last sentence to read: "Affiliate Fellows shall pay Fellowship dues and shall enjoy the privileges of the Scientific Assembly without the right to vote or hold office."

8. Amend Division Two, Chapter V, so that the second category shall read: "(2) Active or Associate Members;"

9. Amend Division Two, Chapter VII, Section 3, first sentence to read: "The officers of each section shall be a chairman, a vice chairman, a secretary, the delegate, a representative to the Scientific Exhibit and such other officers as the section . . . ."

10. Amend Division Two, Chapter VII, Section 5, by adding the following new paragraph:

"(D) Section Representatives to the Scientific Exhibit.—The section representatives shall assist the Committee on Scientific Exhibit of the Board of Trustees in obtaining outstanding scientific exhibits and advise the Committee on the selection of material submitted and on all other matters pertaining to exhibits in their respective specialties."

11. Amend Division Three, Chapter IX, Section 1, (A) so that this paragraph shall read: "In order to be eligible for election to membership in the House of Delegates, a physician must have been a dues paying active member of the American Medical Association and a Member Fellow of the Scientific Assembly for at least the two years immediately preceding the session of the House at which he is to serve. Service Fellows need not be dues paying active members."

12. Amend Division Three, Chapter IX, Section 1 (B), second paragraph to read: "Secretaries of constituent associations, secretaries of sections of the Scientific Assembly, the Surgeons General of the United States Army, the United States Navy, the United States Air Force and the United States Public Health Service and the Chief Medical Director of the Veterans Administration shall certify delegates and alternates to the Secretary of the American Medical Association."

13. Amend Division Three, Chapter IX, Section 1 (C) to read: "The opportionment of delegates from each constituent association shall be one delegate for each thousand (1,000) or fraction thereof, dues paying active members of the American Medical Association as recorded in the office of the Secretary of the American Medical Association on December 1 of each year."

14. Amend Division Three, Chapter X, Section 4 as follows: "Sec. 4. Standing Committees.—(A) The following are the standing committees of the House:"

and add as a final category,

"(5) Committee on Constitution and By-Laws."

and further amend Chapter X, Section 4 by adding the words "and Committees" after the words "The Councils" in the first sentence of paragrph (C), and by adding the words, "and Committee" after the words, "Each Council" in the first sentence of paragraphs (D) and (E);

and amend the same section, Paragraph (F) to read: "(F) Each Council and Committee shall have authority to appoint subcommittees subject to the approval of the Board of Trustees for any purpose within the functions of the Council or Committee."

and further amend the same section by adding the words, "and Committees" at the end of Paragraph (G) so that that paragraph will read: "(G) Headquarters—The Association headquarters shall be the headquarters of all Councils and Committees."

and further amend the same Section by adding the words, "and Committee" after the words "Each Council" in the first sentence of paragraph (H).

15. Amend Division Three, Chapter X, Section 5, (D) (4) to read: "(4) Medical Education and Hospitals, to which shall be referred all matters relating to medical education and hospitals."

16. Amend Division Three, Chapter XII, Section 6, by adding final paragraph "(I) Be an ex officio member of all standing committees of the House of Delegates and the Board of Trustees without the right to vote."

17. Amend Division Three, Chapter XIII, Section 4, (C) to read as follows: "(C) Appoint an editor or editors for all or any of the Association's publications. The Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION shall be an ex officio member of all standing committees of the House of Delegates and the Board of Trustees without the right to vote."

and further amend the same section by adding a new paragraph "(E) Appoint an Assistant Secretary. He shall be an ex officio member of all standing committees of the House of Delegates and the Board of Trustees without the right to vote."

This amendment necessitates the relettering of the remaining paragraphs of Section 4, so that former paragraphs (E), (F) and (G) will become paragraphs (F), (G) and (H) respectively.

Respectfully submitted,

JOSEPH D. MCCARTHY, Chairman.
LOUIS A. BUIE.
EDWIN S. HAMILTON.
STANLEY H. OSBORN.
BRITTON E. PICKETT.
FLOYD S. WINSLOW.
and ex officio
FRANK F. BORZELL.
ERNEST B. HOWARD.
GEORGE F. LULL.
JAMES R. REULING.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO CONSTITUTION AND BY-LAWS

This report was referred to the Reference Committee on Amendments to the Constitution and By-Laws, which presented the following report which was adopted and the By-Laws amended as indicated while the proposed amendments to the Constitution will lie over until the annual session in June, 1951:

1. Your committee approves the resolution of the Interim Committee on Constitution and By-Laws and recommends its adoption.

2. The proposed amendments offered by the Interim Committee on Constitution and By-Laws are recommended for adoption with the following amendment: That in the sentence reading "The general officers, the past Presidents of the Association, the General Manager, the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the chairmen of the several Councils" etc., the word "Councils" shall be changed to "standing committees."

Supplementary Report of Board of Trustees on Resolution on Council on Federal Medical Services

Dr. Louis H. Bauer, Chairman, Board of Trustees, presented the following report, which was referred to the Reference Committee on Insurance and Medical Service:

During the June 1950 Session of the House of Delegates Dr. James C. Sargent introduced a resolution entitled, "Resolution on Council on Federal Medical Services." On recommendation of the reference committee, the resolution was referred to the Board of Trustees for further study. After further study the Board of Trustees referred the Resolution to the Council on Medical Service with the suggestion that the Council's Committee on Medical Care of Veterans "be expanded to include federal personnel."

The Council is in agreement with the suggestion of the Board of Trustees and recommends to the House of Delegates that the name of the Council's Committee on Medical Care of Veterans be changed to Committee on Federal Medical Services. On approval of this recommendation, the Council will enlarge the personnel of this Committee to meet the requirements of the specific functions enumerated in the resolution; that is, (*a*) advising the Board of Trustees on all aspects of the several forms of federally supplied medical care either now or to be established; (*b*) serving the Board of Trustees and the Association in conference with and in representations to both nongovernmental and governmental agencies interested in the several forms of federally supplied medical care; and (*c*) advising the House of Delegates at each of its regular and special sessions on any policy or change in policy of the Association relating to the several forms of federally supplied medical care which may require its consideration and action.

In order to carry out these functions, the Council recognizes the necessity of the fullest possible cooperation between this Committee, the Council on National Emergency Medical Service, the Committee on Chronic Diseases, the Washington Office and *other councils, bureaus, and committees within* the Association.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

The reference committee presented the following report which was adopted:

In the Supplementary Report of the Council, the section on Federal Medical Services, the committee recommends the approval of lodging this function in the present Council Committee on Medical Care of Veterans and the change of the name to the Committee on Federal Medical Services; it recommends that the three paragraphs on the functions of the Committee, *a*, *b*, and *c*, be corrected accordingly so that in *a* the words "Council on Medical Service" will be substituted for the words "Board of Trustees," in *b*, the words "Council on Medical Service" will be substituted for the words "Board of Trustees and the Association," and in *c*, the words "Council on Medical Service" be substituted for the words "House of Delegates." These corrections are made in line with the mechanical changes suggested.

Report of Council on Medical Education and Hospitals

The Report of the Council on Medical Education and Hospitals (See THE JOURNAL, Oct. 21, 1950, pages 662-666) was referred to the Reference Committee on Medical Education, which reported as follows and the report was adopted:

Your reference committee has considered the report of the Council on Medical Education and Hospitals. Your committee commends the Council for the splendid service which it has rendered and for the clear and concise report which it has made of its many activities in the past year. It is recommended that all members of the House of Delegates read the report of the Council on Medical Education and Hospitals. Your committee expresses the hope that the Council on Medical Education and Hospitals will continue its consideration of the critical problem of medical education in the current emergency as well as the Survey of Medical Education. Your committee has considered the report of the Council on the financial support of medical schools.

Your committee recommends the approval of the report of the Council on Medical Education and Hospitals.

Report and Supplementary Report of Council on Scientific Assembly

The Speaker referred the Report of the Council on Scientific Assembly (See THE JOURNAL, Oct. 21, 1950, page 667) and its following supplementary report to the Reference Committee on Sections and Section Work:

To the Members of the House of Delegates of the American Medical Association:

The Council met on November 17 in Chicago and on December 4 in Cleveland. The Conference of Section Secretaries also met with the Council in Chicago on November 17.

SECTION ON ALLERGY

On November 17 a request to recommend the establishment of a Section on Allergy was presented to the Council by Dr. Harry L. Huber of Chicago. After due consideration, the Council voted to recommend to the House of Delegates that a Section on Allergy be not established at this time. At the same meeting, the Council voted to grant a Session on Allergy in the Section on Miscellaneous Topics at the 1951 Atlantic City Annual Session.

1951 ATLANTIC CITY ANNUAL SESSION

No change in the general form of the Scientific Assembly is anticipated for the 1951 Annual Session The section secretaries have their programs well advanced and the Council has already filled most of the places on the list of speakers for the General Scientific meetings.

1951 HOUSTON CLINICAL SESSION

The Council notes with pleasure the appointment by the Board of Trustees of Dr. James T. Billups, of Houston, Texas, as Chairman of the Local Committee on Arrangements for the Houston Clinical Session, to be held Dec. 4-7, 1951. Conferences with Dr. Billups have already been held and the Council plans to meet in Houston in March of next year.

The Southern Medical Association meets in Dallas a few weeks prior to the Clinical Session of the American Medical Association in Houston. Both associations may suffer from the close juxtaposition of these two meetings. There is bound to be considerable duplication in audience and in speakers who participate in the clinical lectures or presentations. This also applies to exhibitors, both commercial and scientific.

In view of a contract already signed with the Houston authorities, the Council will do its best to provide a suitable program, depending largely, as usual, on the Local Committee on Arrangements. The addition of Dr. Samuel P. Newman of Denver to the membership of the Council to fill out the unexpired term of Dr. Larson, now a member of the Board of Trustees, should be helpful to the Houston Committee, as he was responsible for the splendid program arranged for the Denver Clinical Session in 1950, which had to be suddenly given up when the meeting was transferred to Cleveland.

1950 CLEVELAND CLINICAL SESSION

The Council desires to express its appreciation at this time to the Local Committee on Arrangements for the 1950 Cleveland Clinical Session. Headed by an able chairman, Dr. Fay A. LeFevre, all members of the committee are to be congratulated on the exhibits, the television and clinical programs of high quality presented at this Clinical Session.

REPORT OF REFERENCE COMMITTEE ON SECTIONS AND SECTION WORK

The reference committee presented the following report, which was adopted:

Your Reference Committee on Sections and Section Work wishes to make the following report:

1. Your reference committee had referred to it the report of the Council on Scientific Assembly together with a supplementary report, in which the Council had made certain specific recommendations:

A. Section on Military Medicine: After duly considering the request made by the House of Delegates at the last Annual Session in San Francisco that a Section on Military Medicine be established, the Council on Scientific Assembly has recommended the establishment of a new Section on Military Medicine. Your reference committee has given this matter serious thought and is in full accord with this action of the Council, particularly now that the importance of military medicine in the national defense in our present emergency has taken on added significance. Your reference committee therefore recommends to the House of Delegates the establishment of a new Section on Military Medicine.

B. Change in name of Section on Preventive and Industrial Medicine and Public Health: Your reference committee is in agreement with the recommendation of the Council that the name of the Section on Preventive and Industrial Medicine and Public Health not be changed.

C. Section on Medicine in Industry: Your reference committee approves the recommendation of the Council that a Section on Medicine in Industry not be established.

2. Resolution on Change in Name of Section on Nervous and Mental Diseases: Your reference committee, after due consideration, recommends that this resolution be disapproved.

3. Your reference committee has reviewed the work of the Council on Scientific Assembly and wishes to express appreciation for its splendid accomplishments.

Report and Supplementary Report of Council on Medical Service

The Speaker referred the Report of the Council on Medical Service (See THE JOURNAL, Oct. 21, 1950, pages 668-670) and its mimeographed supplementary report to the Reference Committee on Insurance and Medical Service, which presented the following report which was adopted:

The printed portion of the report of the Council on Medical Service deals chiefly with Committees of the Council, Indigent Medical Care, Grievance Committees, the Physicians Placement Service and the Distribution of Printed Material. The committee feels the Council has planned well and accomplished much within the limits of its budget and staff. The committee recommends the approval of the printed report.

In the supplementary report of the Council, the Section on Federal Medical Services, the Committee recommends the approval of lodging this function in the present Council Committee on Medical Care of Veterans and the change of the name to the Committee on Federal Medical Services, it recommends that the three paragraphs on the functions of the Committee *a*, *b*, and *c*, be corrected accordingly so that in *a* the words "Council on Medical Service" will be substituted for the words "Board of Trustees," in *b*, the words "Council on Medical Service' will be substituted for the words "Board of Trustees and the Association,' and in *c*, the words "Council on Medical Service" be substituted for the words "House of Delegates" These corrections are made in line with the mechanical changes suggested

The recommendations regarding possible policy concerning temporary disability compensation insurance were reviewed and many witnesses with varying viewpoints were heard Some information on the subject was contained in the Council's report and witnesses presented a number of exhibits based on the subject It was ascertained that a complete digest of the information that the Council's staff has assembled has not as yet been made and until this has been done it is doubtful whether the House of Delegates will be in a position to formulate a complete policy respecting the best methods of providing such coverage It appears that the Council will be able to supply this to every member of the House of Delegates early in May and the committee recommends that it do so In the interim, the Council is in a position to supply the information it has to any state societies needing it

It is recommended pending the establishment of a policy on the subject of temporary disability compensation insurance that the following minimum safeguards ought to be observed

1 In the case of possible legislative enactment the prevention of abuse and extension of the program into allied fields,

2 Limitation of benefits to cash indemnity,

3 Limitation of physician's duty to reports on diagnosis, prognosis and ability to work

4 Provision of medical supervision or review for maintenance of suitable standards of reporting

On the subject of Voluntary Health Insurance, the House should note the commendable progress outlined in the report

The House should reiterate at this time the necessity for the expansion of benefits offered under voluntary service plans as rapidly as will be consistent with sound insurance practice Among those attention is drawn not only to catastrophic coverage, and home and office service coverage, but particularly the extension of periods of grace occasioned by temporary unemployment

The conferences on the provision of nursing services are most praiseworthy and approval of that portion of the report is recommended with the deletion of the paragraph which follows the listing of eight problems to be considered, the paragraph which makes reference to commercial carriers

The recommendations with respect to relations with lay sponsored voluntary health plans outlining the mechanism and mode of accreditation are well thought out and the committee recommends their approval

The committee desires to make the following general observations regarding the functions of the Council on Medical Service with recommendations to the House

The Council on Medical Service has within its sphere of activity some of the principal responsibilities of the American Medical Association relating to the positive program of the Association in making studies and devising means for getting more and better medical care to the American people With particular approval the committee has heard the statement from the Chairman of the Board that the support of the Council's activities is to be increased Hitherto the Council has conducted its activities with a very small staff and very limited appropriations The committee believes that the staff has been insufficient even to make an expert analysis of the data the Council possesses The committee envisages in the immediate future the necessity for proceeding on a greatly expanded program of studies and the active promotion by the American Medical Association in all needful areas of every sound means of supplying medical service Among many needed projects might be mentioned pilot studies in the provision of care, in the further discovery of local gaps in medical care, and the establishment of a revolving fund to be utilized in the physician placement service Furthermore, war conditions are likely to produce dislocations of medical service which will furnish special and urgent problems for the Council A greatly augmented staff strengthened in every particular, is requisite The members of the Association have demonstrated that they can mobilize funds for the negative aspects of our program and it is now shown that they are just as willing to accumulate large amounts for the positive phase The House might well indicate to the Board its entire support for the greater extension of the functions of this Council for the purpose mentioned and the committee so recommends

Resolution on Facilities of the American Medical Association Available in Serving the Nation

Dr R B Robins Arkansas, presented the following resolution which was adopted:

Whereas, Our nation and the United Nations are now facing the most fateful decisions in their history in protecting and preserving the liberties and freedoms for which they were created, and

Whereas, The undeclared war now being waged against the United States and the United Nations in Korea is growing more serious hourly, and

Whereas, Our nation and the other free nations of the world require at this hour and in the ominous days and weeks ahead the fullest support of our united peoples, and

Whereas, This situation imposes on the medical profession both in the care of our fighting men and of our civilian populations the heaviest of responsibilities, and

Whereas, The American Medical Association, acting through its House of Delegates and representing its 148 000 members desires to discharge fully these responsibilities in serving the men of the armed forces and the civilian population, therefore be it

Resolved, By the House of Delegates of the American Medical Association that the President of the United States, as Commander in Chief of our armed forces be informed that the facilities of the American Medical Association will be used in all ways possible and necessary in serving the nation and in providing the best of medical care to soldier and civilian alike

Resolution on Absentee Ballot

Dr James Z Appel, Pennsylvania, presented the following resolution

Whereas, It is the duty of every citizen of the United States to exercise his or her privilege of the ballot, and

Whereas, There is a great variation in the laws of the states regarding absentee ballots some states having no absentee ballots, others having such ballots but regulations being such that make it extremely difficult to exercise a vote by absentee ballot, and

Whereas, During election week of 1950 several state regional and national medical organizations held sessions thus preventing their membership from exercising their privilege of the ballot, therefore be it

Resolved, That the House of Delegates of the American Medical Association request the Board of Trustees to memorialize all medical organizations regarding the error of scheduling state, national and regional medical meetings at times of election

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

The Reference Committee on Miscellaneous Business, to which this resolution was referred, submitted the following report, which was adopted

Your Reference Committee on Miscellaneous Business heartily agrees with the intent of the resolution and feels that it is inconsistent and unthoughtful for medical organizations to urge doctors to get out and vote and then arrange meetings which interfere with this privilege Your committee requests that editorial comment be made on this problem in THE JOURNAL of the American Medical Association in order that the purpose of this resolution may be implemented It, therefore, recommends the adoption of this resolution

Resolutions on Hospital Standardization Program

Dr James Z Appel, Pennsylvania, presented the following resolutions

Whereas, The House of Delegates of the American Hospital Association at its recent meeting at Atlantic City authorized the trustees of the American Hospital Association to establish a Hospital Standardization Program, and

Whereas, The American College of Surgeons did express a desire to withdraw from the hospital standardization field, now, therefore, be it

Resolved, That the House of Delegates of the American Medical Association expresses its disapproval of (1) the plans of the American Hospital Association regarding the existing hospital standardization program of the American College of Surgeons and (2) the plan of the American Hospital Association to establish a hospital standardization program either as an independent enterprise or as a transfer to the hospital association; and be it further

Resolved, That any new hospital standardization program be a joint venture whereby the medical components of the plan would set medical practice standards and the administrative components would set non medical standards, each group having representation on the board which will be the final authority.

Report of Reference Committee on Medical Education

The Reference Committee on Medical Education, to which the resolutions were referred, presented the following report, which was adopted:

Your committee gave serious consideration to the resolutions presented by Dr. James Z. Appel on the subject of hospital standardization Your committee agrees with the principles expressed in the resolution but because of the study being given to this matter at the present time, your committee feels that no action should be taken

Resolution on Mail Deliveries

Dr James Z. Appel, Pennsylvania, presented the following resolution:

Whereas, The present restricted schedule of first class mail deliveries and collections has resulted in serious inconvenience to the public; and

Whereas, This situation has been a particular hardship to physicians in the performance of their important professional duties; therefore be it

Resolved, That the House of Delegates of the American Medical Association go on record as strongly urging the prompt restoration of previous first class delivery and collection schedules in the Post Office Department

Report of Reference Committee on Miscellaneous Business

The Reference Committee on Miscellaneous Business presented the following report, which was adopted:

Your Committee on Miscellaneous Business is in sympathy with the intent of the resolution but feels that this is not pertinent to the affairs of the House of Delegates of the American Medical Association It, therefore, recommends that this resolution not be adopted.

Resolution on Absence of Dr. Roy Fouts

Dr. James Z. Appel, Pennsylvania, submitted the following resolution, which was adopted:

Whereas, Dr. Roy Fouts, a member of this House of Delegates for 28 years, during which time he most ably served as Vice Speaker and Speaker of the House of Delegates, is unable to attend this session due to illness; be it

Resolved, That the House of Delegates express its sincere hope for his speedy recovery and inform him that his absence from this session has created a definite loss to the American Medical Association

Resolution on Proposed Amendment to Principles of Medical Ethics

Dr Allen T. Stewart, Texas, presented the following resolution proposing an amendment to the Principles of Medical Ethics:

Whereas, On June 6, 1949, at the recommendation of the Judicial Council, the House of Delegates of the American Medical Association approved a revision of the Principles of Medical Ethics, and

Whereas, In Section 6, Chapter I of these revised Principles of Medical Ethics there are two sentences which read "An ethical physician does not engage in barter or trade in the appliances, devices or remedies prescribed for patients, but limits the sources of his professional income to professional services rendered the patient He should receive his remuneration for professional services rendered only in the amount of his fee specifically announced to his patient at the time the service is rendered or in the form of a subsequent statement, and he should not accept additional compensation secretly or openly, directly or indirectly, from any other source", and

Whereas, An interpretation of these sentences by the Judicial Council classifies as unethical many accepted practices of physicians, necessary for the proper care and protection of their patients, particularly in rural areas and in smaller communities; and

Whereas, A code of ethics should be so worded as to be reasonable and susceptible of universal application to all members of the society, irrespective of the size or location of their community; and

Whereas, The enforcement of this provision of the Principles of Medical Ethics would be a restrictive infringement on the freedom of physicians to indulge in many legitimate businesses related to their profession, and

Whereas, The Federal Government is using these sentences as an entering wedge to restrict and legally control the independent and nonprofessional business activities of the members of the medical profession thereby depriving them of their constitutional rights to private enterprise; and

Whereas, The disregarding of this provision of the Principles of Medical Ethics would provide opportunities for charges of hypocrisy, evasion and subterfuge against the medical profession, as it is well known that many reputable physicians have interests or stocks in enterprises connected with the medical profession, which ownerships and interests are considered entirely proper by the profession and community as a whole, but which would be outlawed and declared unethical by the application of the provisions of these sentences in Section 6, Chapter I; and

Whereas, It has always been the policy of the American Medical Association, acting through its House of Delegates, to be unalterably opposed to rebating in any form; therefore be it

Resolved, That the House of Delegates of the American Medical Association delete the fourth and fifth sentences of Section 6, Chapter I, Principles of Medical Ethics, leaving the section to read "An ethical physician will not receive remuneration from patents on or the sale of surgical instruments, appliances and medicines nor profit from a copyright on methods or procedures The receipt of remuneration from patents or copyrights tempts the owners thereof to retard or inhibit research or to restrict the benefits derivable therefrom to patients, the public or the medical profession The acceptance of rebates on prescriptions or appliances, or of commissions from attendants who aid in the care of patients is unethical The prescription or dispensing by a physician of secret medicines or other secret remedial agents, of which he does not know the composition, or the manufacture or promotion of their use is unethical"

Report of Reference Committee on Miscellaneous Business

The Reference Committee on Miscellaneous Business submitted the following report, which was adopted:

1. Resolution on "Amendment of Principles of Medical Ethics, Sec 6, Ch I": Your Reference Committee on Miscellaneous Business after a full hearing and much discussion before the committee of the various problems of medical practice pertinent to this resolution and realizing the difficulty of immediate solution, recommends that this resolution be referred to the Judicial Council with the suggestion by the committee that in Chapter I, Section 6, the fourth sentence, the words, "for financial gain" be inserted after the words, "for patients," and that the remainder of the paragraph be deleted Because of the suggested reference of this resolution to the Judicial Council with the foregoing suggestions by the committee it recommends that the resolution as presented be not approved and that the suggestions be referred to the Judicial Council

Resolutions on Establishment of Special Committee on the Problems of Alcoholism

Dr H. H. Bauckus, New York, presented the following resolutions:

Whereas, At the Ninety Ninth Annual Session of the House of Delegates of the American Medical Association, a resolution was introduced by Dr Joseph P Henry of New York on the Establishment of a Committee on the Problems of Alcoholism, as described on page 40 of the Proceedings of that Session, and

Whereas, The resolution was referred to the Reference Committee on Miscellaneous Business, and

Whereas, The said reference committee reported back to the House of Delegates, as shown on page 55 of the Proceedings, paragraph 6, that the subject should be studied by "the already established Commission on Chronic Illness", and

Whereas, The said commission is not the proper body to whom this subject should be delegated because it is not a committee of the American Medical Association, now therefore be it

Resolved, By the House of Delegates of the American Medical Association, that the reference to the Commission on Chronic Illness be, and it hereby is, rescinded, and be it further

Resolved, That the same resolution presented by Dr. Joseph P Henry of New York at the Ninety Ninth Annual Session of the House of Delegates be reenacted by this body, as follows:

"*Resolved,* That the American Medical Association establish at the earliest feasible date a special committee on the problems of alcoholism, to formulate and put into effect, on a nationwide basis, a comprehensive and effective program for medicine's aggressive participation in the work of solving the problems of alcoholism, such program to include a vigorous recommendation to each constituent state and component county medical society that it establish and support actively a special committee patterned after the special committee on the problems of alcoholism of the Medical Society of the State of New York."

Report of Reference Committee on Hygiene and Public Health

These resolutions were referred to the Reference Committee on Hygiene and Public Health, which submitted the following report and its report was adopted:

Your Reference Committee on Hygiene and Public Health agrees with the intent of these resolutions. It believes reference of the original resolution presented at San Francisco for implementation to the Commission on Chronic Illness was unwise. Inasmuch as the establishment of new special committees is considered undesirable, and after consultation with the sponsors of the resolution and the chairman of the Committee on Chronic Diseases, your reference committee recommends that the problems of alcoholism be referred to the Committee on Chronic Diseases for study and implementation.

Resolution on Federal Aid to Medical Education

Dr. Laurence S. Nelson Sr., Kansas, presented the following resolution:

Whereas, Federal support of any program whatever has inevitably resulted in the regulation and increasing control over that program; and

Whereas, Federal funds represent taxes raised at state and local levels, only a portion of which are ultimately returned to the project at local levels; and

Whereas, Examples exist of successful state and local support of medical schools as in Kansas, rendering further aid at federal levels unnecessary; and

Whereas, The Kansas effort was accomplished through the active participation of the people of Kansas, acting on their own initiative to solve their problems; and

Whereas, This can be accomplished elsewhere through the cooperative effort of the medical school, the medical profession and the people of the state; and

Whereas, Federal grants to research must be considered entirely apart from federal aid to medical education since the results of these researches serve a nationwide and even international effect on medical care and health problems; therefore be it

Resolved, That opposition to federal legislation for the appropriation of financial aid to medical schools be vigorously continued and that increasing effort be expended toward the local solution of financial problems confronting the schools of medicine in this nation.

Report of Reference Committee on Medical Education

The Reference Committee on Medical Education, to which the resolution was referred submitted the following report which was adopted:

Your reference committee considered the resolution presented by the Kansas Medical Society pertaining to federal aid for medical education. Your committee agrees with the principles expressed in this resolution that the financing of medical education should be done on a local level where possible but since this matter has previously been covered in "A Joint Statement by the Board of Trustees and the Council on Medical Education and Hospitals of the American Medical Association on Senate Bill 1453 and H. R. 5940," your committee offers the following substitute resolution:

Resolved, That while some medical schools are finding it difficult to secure sufficient funds to maintain their standards of training, the American Medical Association would prefer to see medical schools receive the support they require from private philanthropy or local public funds. Unless and until such support is provided, it may be necessary for some medical schools to accept financial aid from the federal government. Such aid, however, must carry with it the assurance of freedom from political control and regulation.

Resolution on Inspection of Government Agencies and the Use of Medical Personnel

Dr. E. F. Hoffman, California, presented the following resolution:

Whereas, Because of the international situation and because the administration in its drive to socialize medicine is no longer trustworthy, it has become necessary for the medical profession, in the interest of the public welfare, to inspect and control the use of medical personnel by the military and other government agencies; and

Whereas, The medical profession through the American Medical Association is responsible for the medical care of military and civilian population; and

Whereas, In such matters as medical legislation and relations with military and government agencies, the medical profession has demonstrated its unselfish patriotism; and

Whereas, In the past the military has been reckless in the call-up of doctors and wasteful in their use; and

Whereas, During peacetime, immediately following the last war, physicians were ordered to duty by the military to serve in nonmilitary government agencies, such as Veterans Administration, Public Health and Indian Service; and

Whereas, This dangerous policy of conscription of doctors for civilian purposes in peacetime was one of the direct causes of the present doctor draft law; and

Whereas, There is the constant tendency for military hospitals to expand and take on civilian practice; and

Whereas, The precedent of inspection of military and other government hospitals has already been established by civilian specialty boards for purposes of certification; therefore be it

Resolved, That the American Medical Association establish an advisory committee with the express function of inspecting all government agencies, military and civilian, here and abroad, to see that drafted medical personnel are not wasted and are not used to staff civilian government agencies in competition with private physicians and hospitals.

Report of Reference Committee on Emergency Medical Service

The Reference Committee on Emergency Medical Service, to which the resolution was referred, offered the following report which was adopted:

The committee is in agreement with the intent of this resolution that every possible means be taken to avoid waste of medical personnel in the armed forces. At the committee hearing its consulting members, representing the various branches of the armed forces, discussed this question very fully. As a result of these discussions, your committee now finds that this problem has been receiving their serious consideration and is being solved as promptly as possible. Furthermore, an Office of Medical Services, headed by a civilian physician, was established in the Office of the Secretary of Defense some time ago. Furthermore, the Council on National Emergency Medical Service has reported that an Advisory Committee, composed of outstanding members of the civilian health professions and including two members of its Council, has recently been appointed to advise the Chairman of the National Security Resources Board on the proper allocation of the health resources of the nation, including the medical profession, in the event of full scale mobilization.

In view, therefore, of all the necessary steps now being taken to conserve our medical personnel in both the armed forces and in civilian life, your committee feels that any action by the House of Delegates on this resolution is unnecessary.

Resolutions on Competition with Practice of Medicine

Dr. George M. Fister, Utah, presented the following resolutions:

Whereas, There is a well recognized growing tendency on the part of administrators of many hospitals to encourage private ambulatory patients to enter the radiological, pathological and physical therapy departments of their institutions for the purpose of examination and treatment; and

Whereas, This practice tends to put such hospitals into competition with physicians who are engaged in the private practice of their specialties; and

Whereas, The House of Delegates of the Utah State Medical Association is on record as disapproving the proselyting of private ambulatory patients by hospitals for the purpose of making studies or giving treatments in various departments of such hospitals; therefore be it

Resolved, That the House of Delegates of the American Medical Association go on record as approving in principle of this action of the Utah State Medical Association; and be it further

Resolved, That the House of Delegates of the American Medical Association instruct the proper councils of that body to take the necessary action to carry out the intent of these resolutions.

Report of Reference Committee on Medical Education

The following report which was adopted, was presented by the Reference Committee on Medical Education:

After consideration of the resolutions presented by the Utah State Medical Association regarding competition with the practice of medicine, your committee was in general agreement with the principles set forth in these resolutions but since policy has already been established by the adoption of the Hess committee report, the committee believes that no action is necessary and directs attention to the report of the Judicial Council which outlines the mechanism by which the problem can be solved.

Resolutions on Fund for Aid to Medical Schools

Dr. Edward H. McLean, Oregon, submitted the following resolutions:

Whereas, Medical graduates, even though they have paid full tuition, contribute only 25 *to 50 per cent of the cost of their education and* therefore owe a moral debt to their medical school; and

Whereas, Many medical graduates recognize this moral debt and would be glad to discharge it in part after they become well established in practice, and

Whereas, Federal subsidy of medical education has been vigorously sought by the social planners as one phase in their over all promotion of the socialization of medicine; and

Whereas, Federal subsidy inevitably involves political control, which would lead to a deterioration in teaching standards; and

Whereas, The National Fund for Medical Education Inc has recently been organized to support medical education in the United States on a voluntary basis; and

Whereas, The American Medical Association can play a useful role in the voluntary movement for the support of American medical education by establishing means by which its members can discharge the moral debt arising from their professional education; therefore be it

Resolved, That the House of Delegates of the American Medical Association recognizes the moral debt of the medical profession to the medical schools; and be it further

Resolved, That the House of Delegates instruct the Board of Trustees to study the feasibility of establishing a fund for aid to medical schools to be created by voluntary subscriptions or by allotments from annual dues, said fund to be administered by the Board of Trustees or contributed to the National Fund for Medical Education Inc.

Report of Reference Committee on Medical Education

The Reference Committee on Medical Education, to which the resolutions were referred, presented the following report, which was adopted:

Your reference committee has given careful consideration to the resolutions presented by the Oregon State Medical Society with regard to the feasibility of establishing a fund for aid to medical schools to be created by voluntary subscriptions or by allotments from annual dues and recommends their adoption.

Resolution on Amendment to By-Laws

Dr. C. L. Farrell, Rhode Island, submitted the following resolution recommending an amendment to Division Three Chapter IX, Section 1, (B) and (C)

Whereas, The scope of the work of the individual members of the House of Delegates of the American Medical Association has increased greatly in recent years, thereby making satisfactory representation of a constituent association by a single delegate almost impossible; and

Whereas, There are twenty state and territorial associations faced with this serious problem of having but a single representative to inform them of the many actions of the House and its reference committees; and

Whereas, It is vital today that each state association be adequately represented in the formation of national policies of the American Medical Association, and in turn be completely informed of the transaction of all business of the Association; therefore be it

Resolved, That the Rhode Island Medical Society, by action of its House of Delegates in meeting on September 27, 1950, request the House of Delegates of the American Medical Association to amend Chapter IX, Sec. 1 (B) and (C) of its By Laws to read as follows.

Section 1.

(B) Term—Delegates and alternates from constituent associations, sections, the United States Army, the United States Navy, the United States Air Force, the United States Public Health Service and the Veterans Administration shall be elected or appointed, as the case may be, for two year terms, and shall assume office on January 1 of the year succeeding their election or appointment except that incumbent delegates on the date of the adoption of these By Laws shall serve until their successors are elected and assume office Constituent associations entitled to more than two representatives shall elect them so that one half the number, as near as may be, are elected each year.

Secretaries of constituent associations, secretaries of sections of the Scientific Assembly, the Surgeons General of the United States Army, the United States Navy and the United States Public Health Service and the Chief Medical Director of the Veterans Administration shall certify delegates and alternates to the Secretary of the American Medical Association

(C) Apportionment—The apportionment of delegates from each constituent state association shall be one delegate for each thousand (1,000) active members or fraction thereof where the membership exceeds one thousand, and shall be two delegates for each state with one thousand (1,000) or less active members, as recorded in the office of the Secretary of the American Medical Association on December 1 of each year. Such apportionment shall take effect the ensuing January 1 and shall remain effective for one year thereafter. In December of each year the Secretary of the American Medical Association shall notify each constituent association of the number of delegates to which it is entitled during the next succeeding year

Report of Reference Committee on Amendments to the Constitution and By-Laws

The Reference Committee on Amendments to the Constitution and By-Laws, to which the resolution was referred offered the following report, which was adopted:

A resolution received by your committee came from the Rhode Island Medical Society and dealt with the number of delegates in those constituent associations which have 1,000 or fewer members Your committee realizes the difficulties which are encountered in those constituent associations which are limited to one delegate in the House of Delegates On the other hand, it also realizes that the adoption of such an amendment would give the physicians in these small associations a much larger voice proportionately in the House of Delegates than would be possessed by the larger delegations Your committee, after full hearings and discussion, recommends that this resolution be not adopted, but that the problem of the difficulties of the small constituent associations be referred to the permanent Committee on Amendments to the Constitution and By-Laws for study. Your committee would also request that the permanent Committee on Constitution and By-Laws consider the problem of the single representative from a constituent association who becomes ill or who is called home after being seated in the House of Delegates. See By-Laws, Division Three, Chapter IX, Section 1 (E).

In the hearings held before the committee and in the deliberation itself, it became evident that there is a diversity of opinion as to just what is meant by the terms "ex officio," "ex officio without power to vote" and "executive session" Your committee would recommend that this matter be referred to the permanent Committee on Constitution and By-Laws for interpretation and clarification, with instructions to make a report on this matter at the next session of the House of Delegates.

Proposed Amendment to Constitution

Dr. James P. Wall, Mississippi, presented the following proposed Amendment to the Constitution, Article 6, Section 2:

Amend Article 6, Section 2 so that beginning after the word "service" add: "and the Past Presidents of the American Medical Association" and in the last sentence the following phrase should be deleted: "the Past Presidents." So amended, Article 6 Section 2 would read:

"The House of Delegates is composed of delegates duly elected by the constituent associations and by the sections of the Scientific Assembly and of delegates from the Medical Departments of the United States Army, the United States Navy, the United States Air Force, the United States Public Health Service and the Veterans Administration, appointed by the Surgeon General or Chief Medical Director, as the case may be, of the respective service, and the Past Presidents of the American Medical Association. The general officers, the General Manager, the Editor of The Journal of the American Medical Association and the chairmen of the several Councils shall be ex officio members of the House of Delegates without the right to vote."

Proposed Amendment to the By-Laws

Dr. Wall also presented the following proposed amendment to the By-Laws, Division Three, Chapter IX, Section 1 (B):

Amend Division Three, Chapter IX, Section 1 (B), beginning after the sentence ending "are elected each year", add: Past Presidents of the American Medical Association shall serve for a period of five years immediately following their tenure of the Presidency of the American Medical Association

So amended, that portion of the By-Laws would read as follows: The delegates and alternates from constituent associations, sections, the United States Army, the United States Navy, the United States Air Force, the United States Public Health Service and the Veterans Administration shall be elected or appointed, as the case may be, for two year terms and shall assume office on January 1 of the year succeeding their election or appointment except that incumbent delegates on the date of the adoption of these By-Laws shall serve until their successors are elected and assume office. Constituent associations entitled to more than one representative shall elect them so that one half the number, as near as may be, are elected each year. Past Presidents of the American Medical

Association shall serve for a period of five years immediately following their tenure of the Presidency of the American Medical Association.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

These proposed amendments to the Constitution and the By-Laws were referred to the Reference Committee on Amendments to the Constitution and By-Laws, which reported as follows and the report was adopted:

Your committee received proposed amendments from Dr. James P. Wall, Mississippi, relative to past presidents serving in the House of Delegates Your committee spent considerable time in hearing arguments for and against these amendments and in its own deliberations. Your committee is of the unanimous opinion that the best interests of the Association would not be served by the adoption of these amendments. Your committee therefore recommends that the proposed amendments to the Constitution and By-Laws as presented by Dr. Wall be not adopted.

Resolutions on Medical and Hospital Care of Veterans with Nonservice Connected Disabilities

Dr. Robert B. Wood, Tennessee, presented the following resolutions, which were supported by Drs. Wyman D. Barrett, Michigan, S. E. Gavin, Wisconsin, and James Q. Graves, Louisiana:

WHEREAS, The present program of medical and hospital benefits for veterans with nonservice connected disabilities is of unequal benefit to veterans and not universally available to all eligible veterans because of the presently limited facilities; and

WHEREAS, The program of expanding the number and size of veterans' hospitals to the point of making these benefits reasonably available and accessible to all veterans, especially in cases of acute illness or injury, would require the construction and administration of a very large number of veterans' hospitals, and

WHEREAS, The principle of insurance has been proved by experience to be applicable to the financing of the cost of medical and hospital care; now, therefore, be it

Resolved, By the House of Delegates of the American Medical Association that we recommend to the Congress of the United States and to veterans the enactment of legislation which would have the following effect The repeal of Section 706, Chapter 12, Title 38, of the World War Veterans' Act (Reference, U. S Code, 1940 Edition) and the enactment of a new law with provisions which require the Administrator of Veterans' Affairs to make available to veterans who are unable to pay for their hospital and medical services, hospital and medical service benefits in the form of a hospital and medical service insurance contract, and that the Administrator of Veterans' Affairs be authorized to use his discretion in providing such insurance coverage, either (1) by furnishing each eligible veteran an amount of money sufficient to cover the premium cost of such an insurance contract (about $40 per year), or (2) by purchasing the coverage on behalf of eligible veterans from a corporation or corporations selling and administering such insurance coverage, and be it further

Resolved, That the benefit provision of such a contract be sufficient to cover (1) the average cost of hospital service in approved general hospitals, and (2) medical and surgical services rendered in such a hospital on the basis of the fee schedule that applies to veterans with service-connected disabilities; and be it further

Resolved, That such contracts cover all diseases and disabilities which require hospitalization except (1) disabilities covered by compensation laws and public liability, (2) service connected disabilities, (3) chronic illness (extending over 90 days), (4) tuberculosis and (5) mental illness, and be it further

Resolved, That veterans with disabilities in the categories mentioned in the preceding paragraph, excepting those covered by compensation laws and public liability, be eligible for admission to Veterans' Hospitals; and be it further

Resolved, That veterans with disabilities which are in dispute as to whether or not they are service connected be eligible for admission to Veterans' Hospitals for study, treatment, and adjudication, and that the disability then be classified for these benefits according to the judgment rendered, and be it further

Resolved, That the eligibility of a veteran to receive the insurance contract mentioned above be determined on the basis of his or her net income as determined for federal income tax purposes, and that only veterans who are not liable for a federal income tax be eligible for the hospital and medical insurance contract above referred to, and be it further

Resolved, That the veteran be required to file an application for the insurance contract on a form prescribed by the Administrator of Veterans' Affairs, in which the veteran states under oath the pertinent facts concerning his or her liability for a federal income tax, and be it further

Resolved, That the Coordination Committee on Legislation of the American Medical Association be instructed to use its best efforts to secure congressional action in harmony with the proposals in these resolutions

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

The report of the Reference Committee on Insurance and Medical Service, to which the resolutions were referred, and which was adopted, reads as follows:

On the subject of the resolutions relating to the medical and hospital care of veterans with nonservice connected disabilities sponsored by the delegation from Tennessee and supported by delegates from Michigan, Wisconsin and Louisiana, the committee heard the most witnesses and spent the most time

A substitute resolution presented to the committee by the Pennsylvania delegation was also considered Instead of the language of either of these proposals the reference committee recommends to the House that the Board of Trustees be authorized to permit the Committee on Legislation of the American Medical Association to offer its services to the authorities of the Veterans Administration or to the Congress in seeking either administrative or legislative support for the following three principles. (1) The best possible care of all veterans with service-connected disabilities in Veterans Administration facilities; (2) the best possible care of veterans with nonservice connected disabilities who need financial support, and (3) veterans with nonservice connected disabilities who are able to do so should provide their own care

Resolution on Change in Name of Section on Nervous and Mental Diseases

Dr. Percival Bailey, Section on Nervous and Mental Diseases, presented the following resolution:

WHEREAS, The term Nervous and Mental Diseases has become obsolete, and

WHEREAS, The terms Neurology and Psychiatry are well established and generally understood; and

WHEREAS, The Section on Nervous and Mental Diseases has already been referred to erroneously in THE JOURNAL as the Section on Neurology and Psychiatry; now therefore be it

Resolved, That the House of Delegates of the Association authorize the Section on Nervous and Mental Diseases to change its name to the Section on Neurology and Psychiatry.

REPORT OF REFERENCE COMMITTEE ON SECTIONS AND SECTION WORK

This resolution was referred to the Reference Committee on Sections and Section Work, which presented the following report which was adopted:

Your reference committee, after due consideration, recommends that this resolution be disapproved

Resolution on Payment of Expenses of Section Delegates

Dr. Percival Bailey, Section on Nervous and Mental Diseases, presented the following resolution:

WHEREAS, The sections of the Scientific Assembly have no funds of their own with which to pay the expenses of their delegates, and

WHEREAS, The expenses of the delegates of most state associations are now paid by the organizations which they represent; and

WHEREAS, The number of meetings annually which the delegates have to attend has doubled, thus doubling their expenses, and

WHEREAS, The Section on Nervous and Mental Diseases fears that this will make it difficult to secure the sort of representation in the House of Delegates which it desires, therefore be it

Resolved, That the Board of Trustees be requested to make provision for the payment of the expenses of the delegates of the sections from the general funds of the Association

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

This resolution was finally referred to the Reference Committee on Reports of Board of Trustees and Secretary, which reported as follows and the report was adopted:

Since a new resolution was introduced at this session by Dr. Percival Bailey, Section on Nervous and Mental Diseases, relating to this matter, both the report of the Board and the resolution were considered by your committee at the same time The Board of Trustees has already taken action on this matter and it is the opinion of your committee that the Board took the only practical course in denying the requested appropriations

Resolution on Hospital Standardization

Dr. J. B. Copeland, Texas, presented the following resolution

WHEREAS, The Board of Regents of the American College of Surgeons has entered into discussions with the American Hospital Association concerning the transfer of the hospital standardization program of the American College of Surgeons to the American Hospital Association, and

WHEREAS, Pursuant to these negotiations, even though the American College of Surgeons has stated it will continue its former program, the house of delegates of the American Hospital Association at its annual meeting in Atlantic City in September passed a resolution increasing the dues of the Association to finance a program in hospital standardization and instructed its board of trustees to proceed forthwith to take over the inspection and standardization of hospitals, and

Whereas, The evaluation of medical standards in hospitals is not a proper function for the American Hospital Association, the governing members of which are predominantly laymen; and

Whereas, The proper and logical body to assume sole and complete control of the evaluation and standardization of medical practice in hospitals is the American Medical Association, therefore be it

Resolved, That the House of Delegates of the American Medical Association reaffirms the proposal stated in a report by a special committee to study conditions of general practice, adopted by this House of Delegates at the annual session in 1948, in which it was recommended that the sole responsibility for the evaluation and standardization of medical practice in hospitals be vested in the Council on Medical Education and Hospitals of the American Medical Association

Report of Reference Committee on Medical Education

The Reference Committee on Medical Education submitted the following report which was adopted:

Hearings on this resolution were held and many members, Fellows, officers, representatives of the American Academy of General Practice and other interested persons discussed the subject at length. After much deliberation by the members of the committee, and in consideration of previous action by the House of Delegates taken in reference to this matter, especially at the 1948 meeting of the House of Delegates as indicated in the report of the Committee to Study Conditions of General Practice and subsequent action of the House of Delegates in 1949 when the action of 1948 was amended as follows and approved:

Resolved, That the American Medical Association highly commends the American College of Surgeons for its long sustained efforts in the field of hospital standardization and endorses its continued activity in this important field; and be it further

Resolved, That the Secretary of the American Medical Association transmit a copy of these resolutions to the Board of Regents of the American College of Surgeons.

In view of the fact that we have just agreed to a further study of this problem, your reference committee recommends that this resolution be not approved.

Resolution on Proposed Amendment to By-Laws, Division Three, Chapter XIII, Section 1

Dr. W. R. Brooksher, Arkansas, presented the following resolution recommending amendment to Division Three, Chapter XIII, Section 1 of the By-Laws:

Whereas, The President and the President Elect of the American Medical Association are the chosen leaders of the organization and as such should be given a voice in formulating its policies; and

Whereas, In most medical organizations the President and the President Elect are full members of the executive governing body; and

Whereas, Under our present Constitution and By-Laws, the President and President Elect are privileged to attend the meetings of the Board of Trustees but are not members of that body, therefore be it

Resolved, That Division Three, Chapter XIII, Section 1, of the By Laws of the American Medical Association be amended as follows:

"Composition—The Board of Trustees shall consist of nine elected Trustees as provided in Article 7 of the Constitution, the President and the President Elect. The Vice President, the Secretary, the Treasurer, the Speaker, the Vice Speaker, the General Manager and the Editor of The Journal may attend meetings of the Board.

Report of Reference Committee on Amendments to Constitution and By-Laws

The Reference Committee on Amendments to the Constitution and By-Laws reported on this resolution as follows, and its report was adopted:

Your committee received a resolution from Dr. W. R. Brooksher of Arkansas with an amendment which would make the President and the President-Elect members of the Board of Trustees. Your committee is not certain as to whether such an amendment could be adopted without a complementary amendment to the constitution and by-laws, nor does your committee know whether an increase in the number of members of the Board of Trustees could be made under the laws of the charter under which the American Medical Association operates, nor is your committee of one mind as to whether the best purposes of the Association could be served by the adoption of this amendment. Your committee recommends, therefore, that this proposed amendment be referred to the permanent Committee on Constitution and By-Laws for further study.

Resolution on Federal Department of Health

Dr. Bruce Underwood, Kentucky, presented the following resolution:

Whereas, The health activities now being carried on by agencies of the Federal Government are of great importance to the citizens of the nation; and

Whereas, There are great differences in the administrative and professional technics required in the execution of health activities as distinguished from welfare, education and other activities of the federal government; and

Whereas, The practicability, success and desirability of the administration of health activities in a separate and distinct health agency has been demonstrated in the states; and

Whereas, The members of the American Medical Association have a keen interest in, and are vitally concerned by, the administrative relationships and administration standing of the federal health agencies, therefore be it

Resolved, That the House of Delegates of the American Medical Association urges all officers and members of the American Medical Association and all component associations to take immediate steps to implement the passage into law of a bill providing for: (1) a Federal Department of Health of cabinet status with a secretary who is a Doctor of Medicine and who has had special training and experience to qualify him for the position; (2) the coordination and integration of all federal health activities under this department except for the military activities of the medical services of the armed forces; (3) a Federal Board of Health under professional rather than political control whose duties shall be to appoint the Secretary of Health and to establish the policies under which the Federal Department of Health is operated.

Report of Reference Committee on Legislation and Public Relations

The Reference Committee on Legislation and Public Relations presented the following report, which was adopted:

Your Reference Committee on Legislation and Public Relations considered the resolution as presented by the Kentucky delegation regarding the establishment of a federal department of health with Cabinet status. Considerable testimony and deliberation by various officers, delegates and members of the Association led this committee to reach the conclusion that such a department with Cabinet rank would be unattainable at this time. It appears to this committee that the same results will or can be achieved by the establishment of an independent agency with executive status in which all of the federal health activities are coordinated All federal health activities except those of the armed forces and the Veterans Administration should be separated from other functions of the government such as welfare and education. This in no manner reverses the well established stated policy of the Association with respect to a federal department of health inasmuch as that objective would be achieved by the adoption of this proposed action. Your reference committee would therefore offer the following substitute resolution:

Resolved, That the House of Delegates of the American Medical Association urges all officers and members of the American Medical Association and all constituent associations to take immediate steps to implement the passage into law of a bill providing for the coordination and integration of all federal health activities under an independent agency with executive status, except the medical services of the Armed Forces and of the Veterans Administration

Resolution on Determining Policy of American Medical Association on Legislative Proposal

Dr. Hoyt B. Woolley, Idaho, submitted the following resolution:

Whereas, On numerous occasions the House of Delegates is not in session at the time many legislative proposals are being considered by Congress or committees of Congress; and

Whereas, The Board of Trustees is the proper body to determine the policy on legislative proposals during the time that the House of Delegates is not in session; and

Whereas, The House of Delegates of the American Medical Association, having full confidence in its Board of Trustees and in the committees appointed by the Board of Trustees to represent the American Medical Association before the national bodies of Congress and other groups where it is necessary to state the policy of the American Medical Association; now therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby specifically authorizes the Board of Trustees and the persons designated by them to appear as witnesses before committees of Congress or to appear before other groups where the policy of the American Medical Association is to be stated, and to do so with full authority to speak for and state the policy of the American Medical Association

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

The resolution was referred to the Reference Committee on Legislation and Public Relations, which presented the following report which was adopted:

The Committee agrees that representatives of the American Medical Association appearing before Congress and other groups should do so with full authority to speak for and state the policy of the American Medical Association and its House of Delegates. It recommends the adoption of this resolution.

Report of Committee on Chronic Diseases

Dr. Robertson Ward, Chairman, presented the following report, which was adopted:

Your committee had a profitable meeting on Dec. 4, 1950, with representatives of the United States Public Health Service, including the director of the Chronic Disease Division, Dr. A. L. Chapman. Also represented by its director, Dr. Morton I. Levin, was the Commission on Chronic Illness. The committee would like to repeat its request of last June for the addition to it of a member of the House of Delegates who is also a member of the Commission on Chronic Illness, in order that better liaison between the committee and the commission could be maintained.

From the meeting with members of the United States Public Health Service and the information furnished by them, a better understanding of the aims and objectives of the Public Health Service in the field of chronic disease was obtained. Through the printed material furnished the committee and the statements of the Director of the Division of Chronic Diseases of the United States Public Health Service, it was learned that his department, rather than seeking a large categorical appropriation, will endeavor to perform an integrative function. It was further understood by your committee that the primary objective of the Division is to evolve and test methods for controlling the chronic diseases in such a way that their efforts will not be competitive with the activities and interest of private physicians, but will be supplementary to them. Nothing could be more satisfying to your committee than strict adherence to these principles by the United States Public Health Service.

The activities of the Chronic Disease Division are divided into four categories, namely, prevention, case finding, care and restorative services. To date most of the energies of the division have been devoted to case finding, principally by means of multiphasic screening examinations. It is generally admitted that this type of examination is undergoing evaluation as a reliable technic for case finding. For this reason, your committee strongly urges those conducting such examinations to use the utmost discretion in reporting results. It is further urged that every effort be made to inform the individuals undergoing the screening process that it in no way serves as a substitute for careful periodic medical examinations. Every possible advertising device should be employed to impress this on those screened. In this connection your committee would like to call your attention to that part of the report of the Council on Industrial Health, delineating the safeguards for multiphasic screening operations.

One of the objectives of the Commission on Chronic Illness, as reported to you by this committee last June, was to stimulate in every state and locality a well rounded plan for prevention and control of chronic disease and for the care and rehabilitation of the chronically ill. It is the belief of your committee that an important step in the implementation of this objective would be the creation in each state medical association of chronic disease committees. We are informed by Dr. Levin that such committees are in existence in only 10 states at the present time. We feel that to be effective, such a committee should be composed of strong personnel who are definitely interested in chronic disease and who would be able to impress the private physician with his continuing responsibility for the care and rehabilitation of patients with chronic diseases, and for the development of sound principles of healthful living for the older-age group of the population.

Your committee cannot close this report without calling to your attention the fact that the Chronic Disease Division is only one agency in the United States Public Health Service having an interest in the problem of chronic diseases. Actually, by far the greatest proportion of federal expenditures for research and education in this field is by other agencies such as the National Institute of Mental Health, the National Heart Institute and the National Cancer Institute. For example, whereas the budget of the Chronic Disease Division is in the neighborhood of $2,000,000 annually, the budget of the National Heart Institute alone is more than nine and a half million dollars. Your committee feels that a more critical analysis of all expenditures in the chronic disease field should be prepared for you. For this reason, it is recommended that the committee be continued and furnished appropriate and adequate assistance.

Supplementary Report of Board of Trustees on Fund for Aid of Medical Schools

Dr. Louis H. Bauer, Chairman, Board of Trustees, presented the following action of the Board on Fund for Aid of Medical Schools, which was adopted on motion of Dr. B. O. Edwards, North Carolina, seconded by several and carried unanimously:

The Board of Trustees of the American Medical Association is pleased to announce to the House of Delegates that it has appropriated a half million dollars out of its National Education Campaign Fund, which was raised to defend medical freedom, for the aid and support of medical schools which are in need of additional financing.

This fund will be given to the medical schools for their unrestricted use in their basic training of future physicians.

This appropriation to aid the medical schools has been made possible by the widespread public cooperation which the profession has received from the American people in its campaign against compulsory health insurance. The fight against socialized medicine must go on until this issue has been clearly and finally resolved, but the pressure for regimentation of the medical profession has greatly lessened due to the magnificent public support which we have received.

The Board of Trustees, therefore, feels that it is keeping faith with the American people, who have given medicine such a splendid vote of confidence, when it contributes this amount to the medical schools of the nation.

There is growing public awareness that federal subsidy has come to be a burden, not a bounty, for it is bringing intolerable increases in taxation and is dangerously increasing federal controls over our institutions and the lives of our people.

American medicine feels very strongly that it should not seek federal aid for medical schools until all other means of financing have been exhausted. The Board of Trustees announced yesterday its belief that funds for this purpose could be obtained from private sources and, as practical evidence of our sincerity of purpose, this appropriation has been made as the nucleus of a fund which we hope will be greatly augmented by contributions from many other sources.

The Board hopes that this action will become a stimulus to other professions, industries, businesses, labor groups and private donors to contribute to this very important cause of protecting and advancing the interests of medical education and the public health.

The American Medical Association urges all its members to contribute individually to this cause, and we hope that doctors will take the lead in securing contributions from other sources.

Furthermore, the American Medical Association invites attention to the fact that it has been spending about a quarter of a million dollars a year for many years past to advance medical education through its Council on Medical Education and Hospitals and other departments. This appropriation, voted today, for an entirely new purpose, is in addition to nearly $285,000 already budgeted for this work during 1951.

The nation's medical schools are of the greatest importance to every American citizen and the American Medical Association has had the advancement of their standards as one of its main objectives for over 100 years. The Board of Trustees feels that if all other organizations and individuals will render support to this worthy cause in accordance with their financial ability not only will the financial security of medical schools be assured, but their freedom will be protected.

WASHINGTON NEWS

(From the Washington Office of the American Medical Association)

Civil Defense

The attitude of Senate and House committees considering Civil Defense Administration bills indicates relatively fast passage, but with important amendments. The net effect, according to present trends, will be to modify powers of the proposed administration, yet allow it adequate freedom for action in emergencies. For one thing, the Federal Bureau of Investigation has complained that the bill as written would give the administration certain investigative powers ordinarily reserved for the FBI. The FBI probably will be allowed to have its way on this point. Some questions have been raised as to the advisability of nationwide construction of bomb shelters as proposed in the bill. Governor Frank J. Lausche of Ohio thought the shelters would be inadvisable, partly because they would take materials and manpower more urgently needed for other civil defense purposes. He proposed that this section of the bill be dropped but that the rest of the bill be expedited. He also thought there should be a cut-off date for the bill. So far, medical aspects of civil defense have not had a prominent part in the hearings.

NSRB Medical Handbook

The National Security Resources Board's medical handbook, delayed several months while agencies and organizations settled their differences over its contents, now is promised for December 28. The 280 pages are said by NSRB officials to present a description of civil defense medical aspects "as complete as we can make it." One important subject will be a treatment for burns, not a standard treatment but a treatment based on items to be included in regional medical stockpiles. Officials said no effort will be made to tell physicians what treatment to use, although the limitation on stockpile items inevitably will lead to a certain degree of standardization. It was emphasized, however, that the treatment presented will not "prejudice treatment of choice on the part of physicians, nor will it prejudice later treatment, possibly by another physician."

USPHS Grants

Meanwhile, the United States Public Health Service is promoting new research into treatment of extensive third degree burns by a $9,774 grant to Dr. Vernon E. Siler, University of Cincinnati. His project is described as a study of "clinical methods of removal of devitalized tissue from burned areas." Dr. Siler will do research on the removal of such tissue by application of organic compounds such as enzymes, without resort to surgery. Another USPHS grant, of $5,616, goes to Dr. Smith Freeman, Northwestern University Medical School, to support tests in the use of a new treatment, the "pthalazines," to stimulate renal function after bodily injury. In some cases of severe wounds, it has been noted that complete stoppage of renal function results. In all, 110 grants were made to 68 institutions in 32 states, at a total figure of $826,876. Some of the larger grants also had an indirect relation to national defense. The largest, for example, went to L. M. Fisher, American Public Health Association, Inc., New York, for research in sanitation administration, methods, programs, job evaluation and personnel requirements.

Precautions for Atomic Bomb Attacks

Another project under consideration by NSRB is the mass distribution of a pocket size card giving simple precautionary rules in the event of an atomic bomb attack. It is the outgrowth of a similar Defense Department card, which already has been issued to persons employed at the Pentagon. In place of the Defense Department card's instructions for reporting to duty stations and the like the NSRB leaflet would carry instructions regarding air raid warnings. The defense card carries such advice as "By the time the debris has stopped falling, there is no radiation hazard. . . . Report to receive treatment if necessary and to work to help over-all situation. . . . Keep your experiences to yourself and don't enlarge on what you hear from others. . . . Shock pressure from burst is not enough to kill; flying debris causes almost all injuries. . . . Burns on exposed skin occur up to two miles; light-colored clothes or any shielding material afford protection; keep your shirt on. . . . Fifty per cent of radiation occurs in the first second, 80 per cent in first 10 seconds, all in first 90 seconds. . . . If in the open, fall flat. . . . Stay put 10 seconds. . . . lingering radiation is so small it is not a hazard; disregard it."

The NSRB, which helped work out the Defense card, expects the one for the general population can be printed to sell for about 10 cents per hundred. Final decision to issue the cards has not been made, but the NSRB staff is completing its work.

Scientific Manpower

The appointment of Dr. Charles A. Thomas to head a Scientific Manpower Advisory Committee in the National Security Resources Board promises to solve one problem that had begun to cause complications. The committee will help NSRB Chairman W. Stuart Symington to evaluate scientific manpower proposals from government agencies, industry and scientific organizations. Further, says NSRB, the committee "will weigh the manpower requirements of a sound basic research program with requirements for applied research and development for production." Regarding medical manpower, Dr. Thomas' committee will assume jurisdiction of those groups in health and associated fields that do not technically fall within the province of Dr. Howard Rusk's Health Resources Committee, which also advises Chairman Symington. Between the two groups, responsibility will be divided for all scientific personnel, medical and nonmedical, according to present plans. This is expected to take in medical school staffs, research workers and technical personnel on hospital staffs.

National Science Foundation Board

The National Science Foundation Board meets January 3 to recommend a foundation director to President Truman. While the 24 members of the foundation board still have not received Senate confirmation, they met at the White House in mid-December to elect officers and members to the executive committee.

James B. Conant, president of Harvard University, was elected chairman of the board and Edwin B. Fred, president of the University of Wisconsin, vice chairman. The executive committee will select its own chairman. The committee has no power to act in the name of the board but will make recommendations to the board for its final approval. The law (P. L. 507, Eighty-First Congress) states that the board may "assign to the executive committee such of the powers and functions granted to the board . . . as it deems appropriate; except that the board may not assign to the executive committee the function of establishing policies, or the function of review and approval. . . ."

Members of the executive committee are Chester I. Barnard, president of Rockefeller Foundation; Detlev Bronk, president of Johns Hopkins University; Leo A. Dubridge, president of

California Institute of Technology; Paul M. Gross, dean of Duke University Graduate School; Dr. Robert F. Loeb, bard professor of medical services, College of Physicians and Surgeons, Columbia University; Joseph C. Morris, vice president of Tulane University; Elvin C. Stakman, chief of division of plant pathology and botany, University of Minnesota, and Conant and Fred.

Chemicals in Foods

The House Select Committee investigating the use of chemicals in food products concluded its hearings with a full week's testimony from food producers, public health officials and representatives of universities. One highlight of the week was the testimony of a physician, Dr. Robert A. Kehoe, director of the Kettering Laboratory, College of Medicine, University of Cincinnati. In blunt language, Dr. Kehoe told the committee that it was involved in a complicated problem, that there was need for regulation, but that if regulations were not reasonable and practical they would do more harm than good.

"The possible deleterious effects of the occurrence or incorporation of toxic, injurious or harmful substances into food materials and beverages used widely or generally in the United States," he said, "is a problem of such broad scope in the field of public health as to baffle the most enthusiastic and experienced investigator or guardian of the public safety." However, he thought that a "reasonable and fair solution" could be arrived at but that it could not be based on a prearranged program or formula for examining new products. He said that insistence on a thorough investigation of all new chemicals used in the food industry, regardless of the merit of such an investigation, "would flood all of the presently available experimental facilities of this type in the country with such investigative work at a time when for a number of reasons they are ill prepared for it and could hardly be spared for it." Regarding proposed new federal regulations, Dr. Kehoe cautioned the committee, "No useful purpose will be served, it is believed, by the setting up of legislative requirements that cannot be met, and indeed some considerable retrograde progress is likely to result from premature developments along this line."

He argued that modifications should be adopted with regard to all factors. "The powers and scope of action by the federal government might well be expanded in such manner as to apply greater and more uniform pressure on the food-producing and food-distributing industries of the country to meet their responsibilities to the community," he said.

When the committee chairman, Representative James J. Delaney (Democrat, New York), asked him for specific suggestions on regulations, Dr. Kehoe said, "The expansion of powers, . . . in the hands of any federal agency, should be done in such manner as not to impose an impossible burden of professional responsibility on any such agency or to invest it with arbitrary powers." However, he said, present regulations need "more teeth." He favored in general the technic used by the Food and Drug Administration in testing and certifying new drugs but proposed that a board or committee of outside experts of "broad experience" be called in to determine the degree of investigation that "could reasonably be done."

When asked whether he thought the primary responsibility should rest on the producers, he said he could not answer flatly yes or no. Dr. Kehoe said he believed the producers should have primary responsibility for supplying information but that the whole weight of investigation should not fall on the private organization "willing to deal with the problem." He said he favored some sort of a foundation to underwrite research of a protective nature.

Dr. Kehoe took issue with earlier technical witnesses who condemned the use of dichlorodiphenyltrichloroethane (DDT) in cow barns. He said the chemical in milk should be kept at the lowest possible level, "but I don't see how you are going to keep it out of cows' milk. It should be used with such care that contamination will be kept at a minimum."

Legislative Notes

The Senate Labor and Public Welfare Committee has reported out S. 4229, extending benefits of Public Law 16 (Seventy-Eighth Congress) to veterans of the Korean War. Public Law 16 grants vocational rehabilitation to disabled veterans. Companion bills have been introduced in the House by Congressman John Rankin (Democrat, Mississippi) and Olin Teague (Democrat, Texas). In letters to both House and Senate, President Truman has urged immediate passage of this legislation. . . . Senator Owen Brewster (Republican, Maine) has introduced a bill making the first Monday in February National Children's Dental Health Day, permanently setting aside that day for this purpose. Previously the proclamation was made each year. There are several similar bills in both Houses. . . . The December 12 *Congressional Record* carries the complete text of the *Collier's* magazine article, "Our Alarming Doctor Shortage," by Albert Q. Maisel. It was placed in the record by Congressman Abraham Multer (Democrat, New York). . . . S. 4246, introduced by Senator Elmer Thomas (Democrat, Oklahoma), would establish a Universal Civilian Defense Training Corps for high school students. Medical and other care would be provided for members attending summer camps. Physical and dental examinations would be given yearly by private physicians and dentists on a contract basis.

Poliomyelitis

The Public Health Service reports that the poliomyelitis death rate for the first eight months of 1950 is less than half that for the corresponding period last year. The estimated rate for the first eight months of 1949 was 1.3 per 100,000 of population, whereas a sampling this year shows a rate of 0.6 per 100,000 for the same months. The percentage of cases resulting in paralysis was approximately the same for both years. A large increase in cases for September and October, however, may bring mortality figures for both years more closely together, according to USPHS officials.

Notes

A Selective Service memo to local boards urges full cooperation with Red Cross on deferment for dependency. It also requests the boards to inform draft registrants of services supplied by Red Cross to men inducted. . . . Mortality statistics for 1949 show the death rate for females is decreasing more rapidly than the rate for males. The rate per thousand for males is 11.2 and for females 8.3. . . . Copies of "Priorities in Health Services for Children of School Age," a report of recent studies, is available from the Children's Bureau, Washington 25, D. C. . . . A change in regulations regarding Bureau of Indian Affairs' policy on treating non-Indian patients in Indian hospitals appears in the *Federal Register* of December 9. . . . Defense Secretary Marshall has called for wider industrial employment of the physically handicapped as essential to national defense. In a statement to the National Employ the Physically Handicapped Committee, he said their employment contributed to the military strength of the nation. . . . General Aniline and Film Corporation has begun production of a synthetic colloid used as a basis for a blood plasma substitute. It was used in Germany during World War II but has not been available in quantity in this country until now. The colloid, polyvinyl pyrrolidone, is a white powder, soluble in water and in many organic solvents. . . . 1,400 men, brought into Army reserves as a result of the doctor draft law, have been processed and have had their physical examination. All will be called to active duty shortly. . . . At this state of mobilization, any specific estimate of future medical needs for the armed forces would be little more than speculation. The important point is that, if the manpower buildup continues as now contemplated, hundreds of men who do not now expect to serve will be in uniform before the end of next year.

GOVERNMENT SERVICES

Public Health Service

Dr. Price Appointed an Assistant Surgeon General

Dr. David E. Price has been appointed an assistant surgeon general of the Public Health Service and an associate director of the National Institutes of Health. The appointment was made by Dr. Leonard A. Scheele, the Surgeon General. The position to which Dr. Price has been appointed was created because of the growth of the National Institutes of Health and particularly because of the increased administrative responsibilities entailed by the broadening of the grants programs, the inauguration of a large cortisone and pituitary adrenocorticotropic hormone (ACTH) research program and the initiation of new research in the metabolic and neurological diseases. Dr. Scheele said that Dr. Norman H. Topping, associate director of the National Institutes of Health for the past three years, will continue in that capacity and will assist the director, Dr. William H. Sebrell, with the intramural research program, including the representation of National Institutes of Health interests with other governmental agencies.

As associate director, Dr. Price will assist the director in representing the Public Health Service's National Institutes of Health in extramural operations, including coordination of the various grants programs, community services and relations with the various voluntary organizations with which the Institutes share mutual interests.

During his administration as chief of the Division of Research Grants from 1948 to the present, the allocation of grants-in-aid for medical research to nonfederal institutions has increased from about $10,000,000 to $35,000,000 yearly. Dr. Scheele said that Dr. Price has administered this program with great effectiveness. He has maintained a major principle on which the grants program was founded—freedom of research for the individual investigator.

Dr. Price has a B.A. from the University of California, an M.D. from the University of California School of Medicine and Dr. P.H. from the Johns Hopkins School of Hygiene and Public Health. He is a diplomate of the American Board of Preventive Medicine and Public Health.

Decrease in Female Death Rate

The death rate for females is decreasing more rapidly than the rate for males according to estimates of 1949 mortality statistics compiled by the National Office of Vital Statistics. Between 1940 and 1949, the death rate for the female population decreased 13 per cent while the rate for males decreased 7 per cent. While the death rate for every age group has been declining since 1940, the rate for children 1 to 14 years decreased 40 per cent, and in the age group 65 to 74 years the decrease was only 10 per cent.

The death rate for males is higher than for females in each of the age groups. The largest relative difference between the rates for males and females in 1949 was in the age group 15 to 24 years, in which group the rate for males exceeded the rate for females by 89 per cent. The percentage differences between the death rates for males and females in the other age groups over infancy have also increased but not as rapidly.

Greek Physicians in Training in Anesthesia

Two Greek physicians arrived in the United States on November 19 for one year of advanced training under programs supervised by the Division of International Health of the Public Health Service. Both physicians were sent here for special training in anesthesia They were selected by a committee of physicians working through the Greek Ministry of Hygiene. Dr. Evangeles Anagnostopoulos will go to Hartford Hospital, Hartford, Conn., where he will study under the direction of Dr. Ralph Tovell, director of anesthesia. Dr. Anagnostopoulos is the pathologist and assistant to the professor of surgery at the University Medical School, Salonica. Dr. Anastassios Karasoulos will report at the University of Minnesota Hospital for training under the direction of Dr. Ralph T. Knight, director of the division of anesthesiology. Dr. Karasoulos has been the consultant for the Prenatal Clinics of the Patriotic Foundation of Social Welfare and Assistance, a semiofficial agency for maternal and child hygiene.

Swineherd's Disease Due to Leptospira Pomona

The following report was released by the U. S. Public Health Service, November 23:

"The Regional Laboratory at Montgomery, Alabama (Virus and Rickettsia Section, Communicable Disease Center, Public Health Service), reports marked rises in serum agglutination titers for Leptospira pomona in 'nearly all' of 22 individuals tested. These were from a group of 50 young adults and adolescents in southern Alabama who developed signs and symptoms suggestive of aseptic meningitis. They had all bathed in an artificial swimming area of a slow moving creek on July 4, 1950. Serological tests for common central nervous system infections and for Leptospira icterohemorrhagia and L. canicola did not indicate recent infection. This is the first report in the United States of swineherd's disease due to this species of Leptospira."

Miscellaneous

Navy Reserve Officers on Duty with Army

Secretary of the Army Frank Pace Jr. has reported to the Secretary of Defense, General Marshall, that the 570 Navy reserve medical officers recently called to active duty and detailed to the Army have reported for Army duty and that "the project has been a complete success." In a memorandum to Secretary Pace and to Secretary of the Navy Francis P. Matthews, General Marshall said that he was pleased with the manner in which this processing of medical officers was accomplished at the Medical Center and that he appreciated this evidence of close and effective cooperation between the two services.

The reserve medical officers, part of the group who received their medical training under the Navy's wartime V-12 Program, were ordered to active duty for Army assignments between Oct. 15 and Nov. 6, 1950, on instructions from the Secretary of Defense. The action was taken in accordance with instructions of the President and conforms to the Department of Defense priority system for recall of medical and dental reserve officers, announced Sept. 7, 1950, for more efficient utilization of these reserve officers. Allocations of reserve medical officers, approved by Dr. Richard L. Meiling, Director of Medical Services, are made available from priority group I for duty according to the current needs of the three military services.

Committee Membership Changes

Dr. I. S. Ravdin, Philadelphia; Dr. William S. McCann, Rochester, N. Y., and Dr. Francis C. McLean, Chicago, have been appointed to the Committee on Medical Sciences of the Department of Defense Research and Development Board. These new members were on active duty with the armed forces duri World War II.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARKANSAS

Appoint Professor of Otolaryngology.—Dr. Frank S. Forman Jr., Kansas City, has been appointed professor of otolaryngology at the University of Arkansas Medical School, Little Rock, effective in January. He will do research as well as teaching and will serve in the Veterans Administration Hospital at Little Rock. Since 1946 Dr. Forman has practiced in Kansas City.

CALIFORNIA

Hospital for Imperial Valley.—Pioneers Memorial Hospital was opened recently near Brawley, at the center of valley population and the convergence of roads. The hospital will serve 65,000 persons and may be reached in a short time from any point in El Centro and Calipatria. It will eliminate trips of 125 miles to San Diego and longer ones to other California cities. The hospital has 88 beds in private and semiprivate room facilities. The central building and technical facilities are designed so that eventual growth to 200 beds can be attained.

Forty-One Doctors Achieve Emeritus Standing.—Forty-one physicians on the staff of Los Angeles County Hospital were feted at a dinner November 15. All had attained the age of 65 years and received their diplomas of service and emeritus standing on the attending staff. During the evening of reminiscence the history of the hospital was presented by two of the physicians, who traced its growth from a little adobe building on Eternity Street operated by the Sisters of Charity in 1858 to the 3,600 bed institution it is today. It has 350 house physicians and attending staff of 1,000 physicians and surgeons for its average patient load of 3,000. Those who were retired are Drs. Irving R. Bancroft, John V. Barrow, Tobias I. Birnberg, Andrew Bonthius, Charles W. Bonynge, William A. Boyce, J. Mackenzie Brown, Halbert W. Chappel, William A. Clark, Benton N. Colver, Roland S. Cummings, Guy B. Desparois, Frank S. Dolley, John Dunlop, Paul A. Ferrier, Alfred E. Galant, Ernest M. Hall, Edward W. Hayes, Albert L. Hill, Carl R. Howson, William W. Hutchinson, Samuel D. Ingham, A. Ray Irvine, Madison J. Keeney, J. Mark Lacey, August H. Larson, George P. Laton, Edmond M. Lazard, James C. Negley, John W. Nevius, Gilbert R. Owen, Francis M. Pottenger, Hans E. Schiffbauer, Solomon Strouse, Charles T. Sturgeon, Raymond G. Taylor, Roy E. Thomas, Gilbert J. Thomas, Leslie E. Trott, Walter F. Wessels and Percival M. Williams.

CONNECTICUT

Dr. Howard Appointed Chairman of Council.—Dr. Joseph H. Howard, Bridgeport, has been chosen chairman of the Governing Council of the Connecticut State Medical Society succeeding Dr. Thomas P. Murdock of Meriden, who resigned to carry on new duties as a member of the American Medical Association's Board of Trustees. Dr. Howard is vice president of the Council of New England State Medical Societies and of the Connecticut Medical Service, and president of the Connecticut Cancer Society. In 1945 he was president of the State Medical Society. He is director of the department of obstetrics at St. Vincent's Hospital, Bridgeport, and a member of the staff at Bridgeport Hospital.

ILLINOIS

State Tuberculosis Hospital to Open.—The 100 bed Mount Vernon State Tuberculosis Sanitarium, the first state institution of its kind in Illinois, is nearing completion and is expected to open early next year. It will be operated by the State Department of Public Health. Dr. Isadore Zapolsky of Elgin, who has been appointed medical superintendent, was a staff physician at the Chicago Tuberculosis Sanitarium for many years, served as medical officer in the U. S. Army for two and a half years and has been in charge of the tuberculosis unit of the Elgin State Hospital since March 1948.

One Million Chest Roentgenograms.—The Illinois Department of Public Health has taken the one millionth chest roentgenogram in its five year old tuberculosis case-finding program. The first mobile x-ray unit began operating on Jan. 10, 1945. Today five x-ray busses and one transportable unit are in operation. The state health department works closely with local groups who sponsor the surveys, i. e., county or city health departments, county tuberculosis associations and sanatorium boards. After the roentgenograms have been processed by the Illinois Department of Public Health, they are sent to the local sanatorium or health department, where they are kept as a permanent record.

Chicago

Presbyterian Hospital School of Nursing.—Presbyterian Hospital laid the cornerstone of its 15 story $2,800,000 school of nursing November 29. When completed next summer it will house 300 students and provide administrative offices, class rooms and laboratories. The new building replaces the Sprague home on Congress Street which is being torn down to make way for the Congress Street superhighway.

Grant for Study of Human Energy.—Northwestern University has received a grant of $4,500 from the Rockefeller Foundation, New York, for study of the creation of energy in the human body. Dr. Irving M. Klotz, professor of chemistry and biology and a member of the faculty since 1942, will direct the research. University scientists will investigate the processes by which chemical fluids in the human body combine with food particles to produce energy.

Dr. Rattner to Head Dermatology Department.—Dr. Herbert Rattner, professor of dermatology, Northwestern University Medical School, has been appointed chairman of the department succeeding Dr. Edward A. Oliver, now professor emeritus of dermatology. Dr. Rattner served as a staff dermatologist in the Cook County, Michael Reese, Augustana and South Shore hospitals before joining the medical school.

University Downtown Lectures.—A series of lectures on biologic aggression and biochemical defenses will be presented in the winter schedule of the University of Chicago's downtown center at 19 South La Salle Street. Frank W. Putnam, Ph.D., assistant professor of biochemistry, will open the series at 8:00 p. m. January 10, when he speaks on "Bacterial Toxins and Biologic Warfare." Other lecturers will be:

Jan. 17, James W. Moulder, Ph.D., assistant professor of biochemistry, Antibodies.
Jan. 24, Bernard S. Schweigert, Ph.D., assistant professor of biochemistry, The Principles of Biological Antagonism.
Jan. 31, James W. Moulder, Ph.D., Chemical Warfare Among Microorganisms.
Feb. 7, Bernard S. Schweigert, The Attack on Anemias.
Feb. 14, Albert Dorfman, assistant professor of pediatrics, Biochemistry of Connective Tissue.
Feb. 21, Albert Dorfman, ACTH, Cortisone and Rheumatic Diseases.
Feb. 28, Thomas B. Coolidge, associate professor of biochemistry, Biochemical Approaches to Dental Health.
March 7, Thomas B. Coolidge, Biological Defenses Against Acids and Bases.
March 14, Elwood B. Jensen, assistant professor of chemistry, The Biochemist and the Cancer Problem.

Prerequisite for the lecture series, which may be attended for college credit, is university work in chemistry, biology or physics. The series ticket is $18, single admission is $2.

In another winter series of the university advances in the fight against death and disease will be reported. Dr. William J. Dieckmann, chairman, department of obstetrics and gynecology, will open the series with a discussion on "Safe Childbirth." He will speak at 5:30 p. m. on January 9 at 19 South La Salle Street. Other lecturers will be:

Jan. 16, Thomas W. Lester Jr., assistant professor of medicine, Controlling Airborne Infections.
Jan. 30, Dwight E. Clark, associate professor of surgery and secretary *of the department*, Radioactive Iodine: New Treatment for Thyroid Diseases.
Feb. 6, M. Edward Davis, professor of obstetrics and gynecology, Diagnosis and Treatment of Gynecologic Cancer, Sterility and Menopause.
Feb. 13, Leon O. Jacobson, associate professor of medicine, The Fight Against Cancer.

Series tickets are $3.60 each and single admission, $1.

KANSAS

Narcotic Violation.—Dr. Hugh A. Hope, Hunter, pleaded guilty on four counts of an indictment charging violation of the federal narcotic laws in the U. S. District Court at Topeka and on October 13 was sentenced on one count to serve a term of one year and one day, was fined $3,000 on another count and sentence was suspended on the two remaining counts. He was placed on probation for a period of three years. Execution of the sentence was suspended until December 1.

MARYLAND

Clinics for Epileptic Children.—A statewide program of assistance to epileptic children was recently begun under a special grant to the Maryland Health Department by the Children's Bureau of the Federal Security Agency. The demonstration program will be based on recent advances in the control of epilepsy. The Johns Hopkins School of Medicine and the University of Maryland School of Medicine and College of Physicians and Surgeons will cooperate in the program. The medical schools will furnish specialists to help in the operation of two diagnostic clinics in Baltimore, to which children throughout the state will be referred. All the county health departments expect to take an active part by referring children to the clinics, supplying necessary drugs and working closely with the local physicians in carrying out the treatment recommended in each case.

MISSOURI

Rehabilitation Center in St. Louis.—Washington University's plans for a rehabilitation center at the School of Medicine in St. Louis were given impetus this month when Mrs. Oscar Johnson, widow of the late shoe manufacturer, pledged 6,000 shares of the capital stock of the International Shoe Company to be applied to the project. Present value of the stock is $240,000. The sum is to be used with other gifts to construct a building that will house the occupational therapy and physical therapy research laboratories. Provision is made that, if by Jan. 1, 1956, sufficient supplementary funds shall not have been raised, proceeds of Mrs. Johnson's gift will be used for support, maintenance and development of the Oscar Johnson Institute, a hospital in the medical center for research in otolaryngology and ophthalmology. Plans for the center were drawn up after consultation with Dr. Howard Rusk, former member of the Washington University medical faculty, now at New York University-Bellevue Medical Center in New York.

MONTANA

State Secretary Goes Into Air Force.—The Executive Committee of the Montana State Medical Association has appointed Dr. Everett H. Lindstrom of Helena to succeed Dr. Herbert T. Caraway, Billings, as secretary-treasurer. Dr. Caraway was recently commissioned a major in the Medical Corps Reserve of the Air Force and is awaiting orders to report for active duty.

NEW JERSEY

Society News.—The New Jersey Orthopedic Society at the recent annual meeting elected Dr. Nicholas S. Ransohoff, Asbury Park, president; Dr. Raphael R. Goldenberg, Paterson, president-elect; Dr. Philip Willner, Newark, secretary, and Dr. Roy R. Ciccone, Passaic, treasurer.

Regional Conference on Civil Defense.—The governor of New Jersey has invited the governors of Delaware, New York, Massachusetts and Pennsylvania to invite representative teams to a four state regional conference on local health services and civil defense January 22-23 at the Nassau Tavern in Princeton. The National Health Council, through its National Advisory Committee on Local Health Units, is serving in an advisory capacity to the organizing committee.

NEW YORK

State Cancer Clinic Directory.—The Bureau of Cancer Control of the State Department of Health has prepared a directory of cancer detection centers and tumor clinics, which lists county, city, hospital and date and time of clinics throughout the state. It suggests that patients be referred through the family physician or, where this is not possible, that the clinic admitting officer be consulted concerning the proper procedure. Fee schedules vary, but no patient will be refused admission because of inability to pay, the directory states. The directory was prepared with the cooperation of city, county and district health officers, who submitted information regarding clinics in their specific areas. The directory is available to physicians, nurses and others concerned with clinic procedures.

New York City

Plea to Reserve Television Channels for Education.—The Council of the New York Academy of Medicine has endorsed the appeal to the Federal Communications Commission for setting aside at least 20 per cent of the channels available on television for educational purposes. The academy points out that, with the growth of the commercial programs, less and less time has been given to health organizations, despite the fact that radio channels are of "public domain" and are released to the stations on a privileged rather than on a proprietary basis. The reservation of a definite percentage of the available television channels for educational purposes should prevent the similar choking off of educational services on television, the academy said.

Course in Allergy.—A short course to cover four sessions on the nature and cause of allergy and its practical management will be conducted in the New School for Social Research beginning January 23 by Dr. Arthur F. Coca. Dr. Coca is honorary president of the American Association of Immunologists. He was the founder and for many years the editor of the *Journal of Immunology* and is the author of a textbook on allergy. Dr. Coca plans to encourage students to experiment throughout the course with the technic of using the pulse to determine causes of allergy symptoms.

Dr. Cherkasky to Direct Montefiore Hospital.—Dr. Martin Cherkasky, Hartsdale, N. Y., has been named director of the Montefiore Hospital to succeed Dr. Ephraim M. Bluestone, director since 1928. Dr. Bluestone was appointed consultant to the hospital, including its Montefiore Hospital Country Sanatorium at Bedford Hills. Both appointments are effective January 1. Dr. Cherkasky has been serving as full time chief of the hospital's division of social medicine. He is also physician-in-charge of the Family Health Maintenance Demonstration, recently inaugurated at the hospital.

Dr. Bluestone this month completes 30 years of service as an executive in the field of organized medical care. He served as assistant director of the Mount Sinai Hospital from 1920 to 1926 and as director of the Hadassah Medical Organization for all Palestine from 1926 to 1928. Dr. Bluestone is a member of the faculty of the Columbia University School of Hospital Administration.

Academy Requests Abstracts of Clinical Research Papers.—The Committee of Medical Education of the New York Academy of Medicine invites all research workers of Greater New York and cities within 100 miles to submit abstracts of papers for presentation at the Clinical Research Meeting to be held April 4-5, when investigators may present results of clinical research. The presentations will be confined to original research in clinical medicine or surgery, or to research applicable to medicine or surgery in all clinical branches. Preference will be given to papers that have not been presented before a society (other than intramural). Investigators are requested to state whether this work has been published or has been submitted for publication; also, in cases in which the investigator is working under the head of the department of a hospital or research institute, approval of the head of department must accompany the application. The presentation in quadruplicate, not to exceed 500 words in length, should be sent to the Secretary of the Committee of Medical Education, New York Academy of Medicine, 2 East 103d Street, New York 29, not later than February 1. A formal invitation to participate in the program will be extended by the committee to the authors of papers selected.

OHIO

Hospital News.—Ground was broken in November for the new Youngstown Receiving Hospital, which is to be built at a cost of about $1,000,000. This will be the ninth receiving hospital in Ohio.

Museum Models on Reproduction Available.—Bruno Gebhard, director, Cleveland Health Museum, announced December 6 that the museum will carry on the work of Dr. Robert Latou Dickinson, originator and designer of the world famous "Birth Series" models for lay and professional education. Since 1945 the Cleveland Health Museum has held exclusive duplication rights on these life-size, three dimensional models of human reproduction. Duplicates are available. Illustrated folders will be sent on request.

SOUTH CAROLINA

State Orthopedic Association.—The South Carolina Orthopedic Association was organized at a meeting November 8 in Columbia. Members of the association will be active fellows, engaged in practice of orthopedic surgery exclusively, and junior fellows, physicians who are in training for practice in orthopedic surgery. After the organizational meeting Dr. Peter B. Wright, professor of orthopedic surgery at the University of Georgia School of Medicine, Augusta, spoke on the basic principles of the specialty. Officers elected are Dr. William A. Boyd, Columbia, president; Dr. Austin T. Moore, Columbia, vice president, and Dr. George R. Dawson Jr., Florence, secretary-treasurer. Elected to the executive committee were officers of the association and Dr. Frank H. Stelling, Greenville, and Dr. Frank A. Hoshall, Charleston.

UTAH

Cancer Research Building.—A four story, $413,000 cancer research building is scheduled to open in December as a part of the proposed University of Utah Medical Center in Salt Lake City. The basement of the structure will be used for tracer studies with radioisotopes. The first floor will be occupied by offices, a library and seminar rooms, the second floor will be devoted to biochemical research, the third floor to studies of the physiology of cancer and the fourth to biologic research. Special rooms will include a tissue culture laboratory, dark rooms, optical laboratories and rooms for housing experimental mice.

WEST VIRGINIA

Society News.—Dr. Raphael J. Condry, Elkins, was named president of the West Virginia Heart Association at the annual meeting in Huntington, October 26-27. Dr. James L. Wade of Parkersburg was named vice president; Dr. John S. Pearson of Huntington, secretary, and Mr. R. E. Plott of Charleston, treasurer

Establishing a Four Year Medical School.—The house of delegates of the West Virginia State Medical Association at a special meeting in Clarksburg November 19 went on record unanimously in favor of establishing a four year school of medicine and dentistry as a part of West Virginia University. Resolution urging the creation of the school had previously been adopted at regular sessions of the house of delegates in August 1949 and July 1950. It was the first called meeting of the delegates in recent years and was one of the most largely attended meetings ever held by the association. A copy of the resolutions adopted by the Board of Governors of the West Virginia University October 27 was read. The board recommended the "immediate expansion of the university's present two year medical school into a four year medical and dental school, teaching hospital, nurses training school and state health center on the campus of the university at Morgantown." The study on which this recommendation is based shows that the required capital expenditures for this program would total from $750,000 to $1,000,000.

The discussion at the meeting also included the reports filed by Dr. Herman G. Weiskotten, dean of Syracuse (N. Y.) University College of Medicine, and Dr. Wilburt C. Davison of Durham, N. C., dean of Duke University School of Medicine, who made surveys concerning the need for such a school and both of whom advocated the immediate construction of a four year school. The next regular session of the legislature will convene at Charleston January 10, and if the usual procedure is followed, the report of the Interim Committee will be submitted to the governor and the legislature early in the session.

WISCONSIN

Course on Cortisone and ACTH at Madison.—The University of Wisconsin Medical School will present January 17 an intensive one day course on cortisone and pituitary adrenocorticotropic hormone (ACTH), designed to appeal to physicians in practice. The course will be supervised by Dr. Edgar S. Gordon, associate professor of medicine, with Dr. Seymour B. Crepea, assistant professor of medicine, and Roland K. Meyer, Ph.D., professor of zoology, assisting. Two medical films will be presented through the courtesy of Armour Laboratories, Chicago. The fee is $3. Further inquiry should be directed to Dr. Robert C. Parkin, 418 North Randall Avenue, Madison 6.

GENERAL

American Academy of Forensic Sciences.—This organization will hold its third annual meeting March 1-3 at the Drake Hotel, Chicago. All persons desiring to present papers are requested to contact Dr. Abraham W. Freireich, chairman of the program committee, 180 Hempstead Avenue, Malverne, N. Y. Additional information may be obtained from the office of the president, Dr. R. B. H. Gradwohl, 3514 Lucas Avenue, St. Louis 3.

Course in Orthoptics.—The American Orthoptic Council will present its fourth annual intensive course in orthoptics in Boston, July 5-Aug. 31, 1951. Tuition is $150. The council will make an effort to see that all students enrolled have places to complete their practical training following the course. Applicants must be at least 18 years of age, have had a high school education and be sponsored by an ophthalmologist. A few scholarships are available from the Delta Gamma Fraternity Project. Inquiries should be addressed to the American Orthoptic Council, Dr. Richard G. Scobee, 40 S. Kingshighway, St. Louis 10.

Masons Finance Research on Dementia Precox.—The Supreme Council, Thirty-Third Degree, of the Ancient Accepted Scottish Rite of Freemasonry for the Northern Jurisdiction, comprising the states north of the Ohio River and east of the Mississippi River, has appropriated $1,000,000 to endow a benevolent foundation, the endowment fund to be increased from time to time. A sum of $50,000 was appropriated for further research into dementia precox. The Supreme Council began its program of study on demential precox 18 years ago and has expended $900,000 in the work up to the present time. Dr. Richard A. Kern of Philadelphia is chairman of the council's Committee on Benevolences.

Society Elections.—Newly elected officers of the New England Obstetrical and Gynecological Society are Dr. Arthur T. Hertig, Winchester, Mass., president; Dr. Joseph H. Howard, Bridgeport, Conn., vice president; Dr. Frederick L. Good, Boston, treasurer, and Dr. Carmi R. Alden, Boston, secretary.—New officers of the Western Surgical Association elected at the meeting in Minneapolis December 1 include Dr. Erwin R. Schmidt, Madison, Wis., president; Dr. Michael L. Mason, Chicago, secretary, and Dr. Herbert H. Davis, Omaha, treasurer. The next annual meeting will be held in Colorado Springs at the Broadmoor Hotel Nov. 29-Dec. 1, 1951.

Dr. Kern to Head Editorial Board.—Starting with the January issue, the *American Journal of the Medical Sciences* will be under the editorial direction of Dr. Richard A. Kern, professor and head of the department of medicine, Temple University School of Medicine, Philadelphia. With Dr. Kern will be a new associate editor, Dr. Thomas M. Durant, professor of clinical medicine at Temple, and a new assistant editor, Dr. Chris J. D. Zarafontis, associate professor of internal medicine at Temple. These men will succeed the former editorial board headed by Dr. Edward B. Krumbhaar of the University of Pennsylvania, Philadelphia. Dr. Krumbhaar retired after 25 years' association with the journal.

Reports on Epidemics.—Dr. Archie L. Gray, Mississippi State Board of Health, has reported to the U. S. Public Health Service an outbreak of acute gastroenteritis in a city with a population of 40,000. There were 18 cases with onset of illness between September 16 and 25. Investigation revealed that a cream-filled pastry was the vehicle of transmission.

Dr. W. R. Geidt, Washington State Department of Health, has reported an outbreak of 13 cases of trichinosis in Seattle. The vehicle of infection was thought to be sausage made late in October from hogs shipped from the West North Central states. The onset of infection was early in November. Diagnosis was confirmed clinically and by muscle biopsy in one case. The routine processing of meat was considered to be satisfactory.

Dr. Williams Wins Chemistry Award.—Professor Roger J. Williams, Sc.D., of the University of Texas, widely known for work in the field of vitamins, was chosen the 1950 winner of the Southwest Award of the American Chemical Society at the society's annual Southwest regional meeting. Professor Williams has been director of the University of Texas Biochemical Institute since 1940. The award, a bronze plaque and $200 in cash, was presented to him at a luncheon in San Antonio, December 9. He came to the University of Texas in 1939. He has been consulting biochemist at the M. D. Anderson Hospital for Cancer Research, Houston, since 1942. He serves on the Food and Nutrition Board of the National Research Council and was formerly with the U. S. Public Health Service. He has received the Mead Johnson Award of the American Institute of Nutrition and the Chandler Medal of Columbia University, which he shared in 1942 with his brother, Robert R. Williams, Sc.D., New York.

Meeting of International College of Surgeons.—The Southern Section of the International College of Surgeons will meet at the Biltmore Hotel, Atlanta, Ga., January 11-13. The program lists the following lecturers and their subjects:

Amos R. Koontz, Baltimore, Tantalum Mesh in Hernia Repair.
Karl Meyer, Chicago, Trends in Treatment of Carcinoma of the Left Colon.
Merrill N. Foote, Brooklyn, N. Y., Nodular Goiter.
Harry Bacon, Philadelphia, Postoperative Abdominal Wound Dehiscence.
Raymond McNealey, Chicago, Ulcerative Colitis.
Arnold S. Jackson, Madison, Wis., Surgical Lesions of the Neck.
Philip Thorek, Chicago, Trends in Esophageal Surgery.

Other speakers include Drs. Herbert Acuff, Knoxville; Richard Cattell, Boston; Gilbert F. Douglas Jr., Birmingham, Ala.; Lawrence S. Fallis, Detroit; William G. Hamm and Exum Walker, Atlanta, Ga.; De Lou P. Hall, Louisville, Ky.; Claude J. Hunt, Kansas City; Frank Meleney, New York, and Howard D. Trimpi, Philadelphia.

Damon Runyon Clinical Research Fellowships—The Committee on Growth of the National Research Council, acting for the American Cancer Society, is accepting applications for Damon Runyon Senior Clinical Research Fellowships These fellowships in cancer research are financed by a grant of $110,000 from the Damon Runyon Memorial Fund to the American Cancer Society Applications should be filed before March 1, 1951, on behalf of the applicant by the institution where the fellow will be in residence Applications will be considered in April and fellowships ordinarily will begin July 1, though this date may be varied at the request of the fellow Awards are made directly to the institution on an annual basis and renewal may be requested Persons now holding these fellowships will be notified regarding applications for renewal Communications should be addressed to the Executive Secretary, Committee on Growth, National Research Council, 2101 Constitution Avenue, N W, Washington 25, D C.

FOREIGN

Poisonous Smog Kills 15 in Mexico—A poisonous refinery smog which spread over the suburb of Poza Rica, an eastern Mexico oil town, took the lives of 15 persons November 24, according to the Associated Press Forty of the 60 persons affected were hospitalized, and three were in serious condition the following day It is believed that the smoke from a refinery plant mixed with a heavy fog was blown down on the settlement Poza Rica is surrounded by oil and gas wells in the low hills, and the afflicted settlement, which bears no name of its own, is among these hills

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS

Alabama Montgomery, June 26 28 Sec, Dr D G Gill, 519 Dexter Ave Montgomery

Arizona * *Examination* Phoenix, Jan 17 19 *Reciprocity* Phoenix, Jan 20 Sec, Dr J H Patterson, 316 W McDowell Road, Phoenix

Arkansas * *Regular* Little Rock, June 7 8 Sec Dr Joe Verser, Harrisburg *Eclectic* Little Rock, June 7 Sec, Dr C H Young, 1415 Main St, Little Rock

California *Written* Los Angeles, Feb 26 Mar 1 *Oral* San Francisco Jan 20 Los Angeles, Feb 24 *Oral and Clinical for Foreign Medical School Graduates* Los Angeles, Feb 25 Sec, Dr Frederick N Scatena, 1020 N St, Sacramento 14

Colorado * Denver Jan 3 5, 1951 Exec Sec, Mrs B M Hudgens 831 Republic Bldg, Denver

Connecticut * *Examination* Hartford March 13 14 Sec to the Board Dr Creighton Barker, 160 St Ronan St New Haven *Homeopathic* Derby, March 13 14 Sec, Dr Donald A Davis, 38 Elizabeth St., Derby

Delaware Dover, Jan 9 11 *Reciprocity* Jan 18 1951 Sec, Dr J S McDaniel 229 S State St, Dover

Georgia Atlanta June Augusta, June Sec Mr R C Coleman, 111 State Capitol, Atlanta

Guam The Commission on Licensure will meet whenever a candidate appears or submits his credentials Ex Sec, Dr John Y Battenfield, Agana

Hawaii Honolulu, Jan 8 11, 1951 Sec, Dr I L Tilden, 1020 Kapiolani St, Honolulu

Idaho Boise Jan 8, 1951 Sec, Mr Armand L Bird, 305 Sun Bldg Boise

Illinois Chicago, Jan 9 11 Superintendent of Registration, Mr. Charles F Kervin, Capitol Bldg, Springfield

Indiana Indianapolis, June 20 22 Exec Sec, Miss Ruth V Kirk, 1138 K of P Bldg Indianapolis 4

Maine Portland March 12 13 Sec, Dr Adam P Leighton, 192 State St, Portland

Maryland Baltimore, June 19 22 Sec Dr Lewis P Gundry, 1215 Cathedral St, Baltimore 1

Massachusetts Boston, Jan 23 26, 1951 Sec Dr Geo R Schadt, 37 State House, Boston

Minnesota * Minneapolis, Jan 16 18 Sec, Dr J F Du Bois, 230 Lowry Medical Arts Bldg, St Paul 2

Missouri *Examination* Jefferson City, Feb 19 21 *Reciprocity* Jefferson City, Feb 12 Ex Sec, Mr John A Hailey, Box 4, Jefferson City

Montana Helena April 2 4 Sec Dr S A Cooney, 214 Power Block Helena

Nebraska * June 1951 Director, Mr Oscar F Humble, Room 1009, State Capitol Bldg, Lincoln

Nevada Carson City, Feb 5 Sec, Dr George H Ross, 112 Curry St, Carson City

New Hampshire *Examination* Concord, March 14 15 Sec, Dr John S Wheeler 107 State House, Concord

New Jersey *Examination* Trenton, June 19 22 Sec, Dr E S Hallinger, 28 W State St, Trenton

New Mexico * Santa Fe, April 10 11 Sec, Dr Charles J McGoey, Coronado Bldg Santa Fe

New York *Examination* Albany, Buffalo, Syracuse and New York City, Jan 30 Feb 2 Sec, Dr Jacob L Lochner, 23 S Pearl St Albany

North Carolina *Reciprocity* Winston Salem, Jan 15 Sec, Dr Joseph J Combs 419 Professional Bldg Raleigh

North Dakota Grand Forks Jan 3 6 Sec, Dr C J Glaspel, Grafton

Oklahoma * *Examination* Oklahoma City, June 6 7 Sec, Dr Clinton Gallaher, 813 Braniff Bldg Oklahoma City

Oregon * *Portland, January 4 6 Sec, Mr Howard I Bobbit, 608* Failing Bldg, Portland 4

Pennsylvania Philadelphia January 1951 Acting Secretary, Mrs M G Steiner, 351 Education Bldg, Harrisburg

Puerto Rico *Examination* Santurce, March 6 Sec, Mr Luis Cueto Coll Box 3717 Santurce

Rhode Island * Providence Jan 4 5 Chief, Division of Profesional Regulation Mr Thomas B Casey 366 State Office Bldg, Providence

South Carolina Reciprocity Columbia, Jan 2, Feb 6, March 5, April 2 Sec, Dr N B Heyward, 1329 Blanding St, Columbia

South Dakota * Jan 15 16 Sioux Falls South Dakota Sec, Dr. C E Sherwood 109 Center St, West Madison

Utah Salt Lake City, July 1951 Dir, Mr Frank E Lees, 324 State Capitol Bldg, Salt Lake City 1

Vermont Burlington, February 1951 Sec, Dr F J Lawliss, Richford

Virgin Islands St Thomas, June 12 Sec, Dr Earle M Rice, St Thomas

Washington * Seattle January 1951 Sec, Mr Edward C Dohm, Department of Licenses Olympia

West Virginia Charleston, Jan 8 10 Sec, Dr N H Dyer, State Capitol, Charleston 5

Wisconsin * River Falls, Jan 9 11, 1951 Sec, Dr C. A Dawson Tremont Bldg River Falls

Wyoming *Examination* Cheyenne, Feb 5 Sec, Dr Franklin D Yoder, Capitol Bldg, Cheyenne

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Connecticut *Examination* Feb 10 Executive Asst, State Board of Healing Arts, Mr M G Reynolds, 110 Whitney Ave, New Haven 10

District of Columbia *Examination* April 1951 Sec, Dr Daniel L Seckinger, 4130 E Municipal Bldg, Washington

Florida *Examination* Gainesville June 2 Sec, Mr M W Emmel, University of Florida, Gainesville

Iowa *Examination* Des Moines, Jan 9 Sec, Dr Ben H Peterson, Coe College, Cedar Rapids

Michigan *Examination* Detroit and Ann Arbor, Jan 12 13 Sec, Miss Eloise LeBeau, 101 No Walnut St, Lansing 15

Minnesota *Examination* Minneapolis, Jan 2 3 Sec Dr Raymond N Bieter, 105 Millard Hall, University of Minnesota, Minneapolis

Nebraska *Examination* Omaha, Jan 9 10 Dir, Mr Oscar F. Humble, Room 1009 State Capitol Bldg, Lincoln 9

Oklahoma *Examination* Oklahoma City, March 27 Sec, Dr Clinton Gallaher, 813 Braniff Bldg, Oklahoma City

Rhode Island *Examination* Providence Feb 14 Chief, Division of Professional Regulation, 366 State Office Bldg, Providence

Tennessee *Examination* Memphis, Dec 27 28 Sec, Dr O W Hyman 874 Union Avenue Memphis

Texas *Examination* Latter Part of April Sec, Bro Raphael Wilson, 306 Nalle Bldg, Austin

Washington Seattle, January 1951 Sec, Mr Edward D Dohm, Department of Licenses Olympia

Wisconsin *Examination* Madison, April 7 Sec, Mr W H Barber, Scott and Watson Sts, Ripon

---

* Basic Science Certificate required

Coming Medical Meetings

American Academy of Allergy, Hotel Statler, New York, Feb 5 7 Dr Walter S Burrage, 208 E Wisconsin Ave, Milwaukee 2, Secretary

American Academy of Orthopaedic Surgeons, Palmer House Chicago, Jan 27 Feb 1 Dr Harold B Boyd, 122 S Michigan Ave, Chicago 3, Secretary

American Society for Surgery of the Hand, Palmer House, Chicago, Jan 26 Dr Joseph H Boyes 1401 S Hope St, Los Angeles 15, Secretary

Atlanta Graduate Medical Assembly, Municipal Auditorium, Atlanta, Ga, Feb 5 7 Mrs Stewart R Roberts 768 Juniper St N E, Atlanta, Executive Secretary

International Post Graduate Medical Assembly of Southwest Texas, Municipal Auditorium, San Antonio Jan 23 25 Dr John H Hinchey, P O Box 2445, San Antonio 6 Secretary

DEATHS

Palmer, Walter Walker ⊕ New York; born in Southfield, Mass., Feb. 27, 1882; Harvard Medical School, Boston, 1910; served an internship at the Massachusetts General Hospital in Boston, where he accepted the Henry P. Walcott Fellowship and where from 1913 to 1915 he served as resident physician; was an instructor in physiological chemistry at Harvard; in 1915 moved to the Rockefeller Institute in New York, serving as an assistant in medicine and assistant resident physician; in 1917 became associate professor of medicine at Columbia University College of Physicians and Surgeons; during World War I served as first lieutenant in the medical reserve corps of the U. S. Army; in 1919 accepted the full time position of associate professor of medicine at Johns Hopkins University and was made an associate visiting physician to the Johns Hopkins Hospital, where he remained until 1921; later returned to New York, becoming Bard professor of medicine at Columbia and director of the medical service at the Presbyterian Hospital, serving in this capacity until 1947, when he became emeritus professor at the school and consultant in medicine at the hospital; since 1947 director of the Public Health Research Institute of New York; past president of the Harvey Society and the American College of Physicians, of which he had been a vice president, governor and regent; member of many professional societies, including the Association of American Physicians, the American Society for Clinical Investigation, the Society for Experimental Biology and Medicine and the New York Academy of Medicine; member of the National Board of Medical Examiners from 1921 to 1943; during World War II served as chairman of the Committee on Drugs and Medical Supplies of the National Research Council and was a member of its committee on medicine; an advisor to the War Production Board and a member of the advisory committee of the Office of Scientific Research and Development; in 1945 and 1946 was chairman of the medical advisory committee appointed by Vannevar Bush to prepare a report for the President on the establishment of a National Science Foundation; in 1919 appointed to the Council on Pharmacy and Chemistry of the American Medical Association, in which he served as vice chairman from 1936 until his retirement in 1947; recipient of the honorary degree of Doctor of Science from Amherst College in 1922, from Columbia in 1929 and Princeton in 1947; his early collaboration with Prof. L. J. Henderson culminated in the classical studies on acid-base equilibrium; made significant contributions to knowledge of diabetes, thyroid physiology and the management of thyroid disease; author of numerous articles and at one time was a member of the editorial board of *Medicine* and also of the *Archives of Internal Medicine;* at the time of his death was editor in chief of the Nelson Loose-Leaf Medicine and chairman of the advisory committee of the *American Journal of Medicine;* died suddenly on his farm at Tyringham, Mass., October 28, aged 68, of coronary disease.

Nuttall, John Price, Santa Monica, Calif.; born in Port Royal, Ky., Jan. 30, 1878; Hospital College of Medicine, Louisville, Ky., 1902; member of the American Medical Association and in 1938 and 1939 a member of its House of Delegates; past president of the American Association of Medical Milk Commissions; past president and vice president of the Los Angeles County Medical Society; formerly secretary of the Henry County (Ky.) Medical Society and health officer of Henry County; served on the staff of the Battle Mountain Sanatorium in Hot Springs, S. D.; during World War II was a member of the Committee on Procurement and Assignment of Los Angeles County; emeritus chief of staff at Santa Monica Hospital; died in the Veterans Administration Hospital in West Los Angeles October 7, aged 72, of arteriosclerosis.

Milnor, Guy Champion ⊕ Honolulu, Hawaii; born in Warrensville, Pa., Jan. 31, 1887; University of Pennsylvania School of Medicine, Philadelphia, 1914; past president of the Hawaii Territorial Medical Association and Honolulu County Medical Society; formerly secretary of the Hawaiian Territorial Board of Medical Examiners and for many years member of the board of health; served during World War I; member of the selective service appeal board; fellow of the American College of Surgeons; consulting obstetrician and gynecologist, Kapiolani Maternity and Gynecological Hospital, where he was a member of the board; senior member of the clinic; consultant and gynecological surgeon, St. Francis Hospital and the Queen's Hospital, where he died October 26, aged 63, of cerebral hemorrhage.

Doughty, Roger Gamble, Columbia, S. C.; born in Augusta, Ga., in 1895; Johns Hopkins University School of Medicine, Baltimore, 1920; past president of the Columbia Medical Society and past vice president of the Southern Surgical Association; president of the South Carolina Surgical Society; member of the American Medical Association, Eastern Surgical Society and the Southeastern Surgical Congress; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; affiliated with Columbia Hospital, where he was a member of the board of trustees, and Veterans Administration Hospital; consulting surgeon, South Carolina State Hospital and Camden (S. C.) Hospital; died October 19, aged 55, of coronary occlusion.

Carr, Alexander Moncrieff, Lewisburg, W. Va.; born in Edinburgh, Scotland, Oct. 1, 1889; University of Pennsylvania School of Medicine, Philadelphia, 1918; member of the American Association of Industrial Physicians and Surgeons; formerly assistant professor of preventive medicine and public health at Detroit College of Medicine and Surgery, now Wayne University College of Medicine in Detroit; while located at Madison, Wis., was connected with the U. S. Public Health Service and was health officer of that city; formerly health officer of Bradley County, Tenn.; health officer for district number two, which includes Monroe, Pocahontas and Greenbrier counties; died suddenly in Charleston November 13, aged 61, of coronary occlusion.

Carter, William Wesley, Bronxville, N. Y.; born in Wilmington, N. C., Nov. 23, 1869; University of the City of New York Medical Department, New York, 1895; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Oto-Laryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; consulting otolaryngologist, South Side Hospital, Bayshore, Bellevue Hospital and Gouverneur Hospital, New York; rhinoplastic surgeon, Elizabeth (N. J.) General Hospital; died in St. Simons Island, Ga., October 11, aged 80, of heart disease.

Toumey, James William ⊕ Boston; Columbia University College of Physicians and Surgeons, New York, 1926; specialist certified by the American Board of Orthopaedic Surgery; member of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served overseas in the U. S. Naval Reserve during World War II; consultant in orthopedic surgery, U. S. Naval Hospital, Chelsea; affiliated with the Lahey Clinic, New England Deaconess Hospital and the New England Baptist Hospital, where he died October 18, aged 50, of carcinoma of the liver.

Meyer, Monte Fiore ⊕ New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1914; clinical assistant professor of otolaryngology at Louisiana State University School of Medicine; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Oto-Laryngology; formerly secretary of the New Orleans Ophthalmological and Otolaryngological Society; served during World War I; member of the staff of Hotel Dieu, Charity Hospital and Eye, Ear, Nose and Throat Hospital; died October 3, aged 56, of coronary occlusion.

Walker, Thomas Franklin ⊕ Great Falls, Mont.: born in Kokomo, Colo., in 1890; University of Colorado School of Medicine, Denver, 1912; specialist certified by the American Board of Pathology; fellow of the American College of Physicians; member of the American Society of Clinical Pathologists; served as secretary-treasurer of the Medical Association of Montana; past president of the Cascade County Medical Society; formerly county health officer; on the staff of Columbus Hospital, where he died October 22, aged 60, of carcinoma of the right lung.

Doran, William Guy ⊕ New York; born in New York Oct. 14, 1885; Cornell University Medical College New York, 1911; formerly associated with the U. S. Public Health Service; served during World War I; member of the American Academy of Orthopaedic Surgeons; fellow of the International College of Surgeons and the American College of Surgeons,

---

⊕ Indicates Fellow of the American Medical Association.

affiliated with the Medical Center, Jersey City, and St. Mary's Hospital, Hoboken, N. J.; on the staff of St. Vincent's Hospital; died in South Orange, N. J., November 1, aged 64, of carcinoma of the stomach.

Lynam, Frank, Minneapolis; Harvard Medical School, Boston, 1893; affiliated with the Barnes Duluth Shipbuilding Company during World Wars I and II; in 1922 administrator of the American Relief Administration in Russia; part time instructor in surgery, 1928-1929, surgeon in health service from 1929 to 1935 and instructor in first aid during the same period at the University of Michigan Medical School in Ann Arbor; at one time medical supervisor for the British government in the Bahamas; died October 8, aged 84, of cancer of the pelvic bone.

Adles, Max, Normandy, Mo.; Missouri Medical College, St. Louis, 1898; member of the American Medical Association and the Illinois State Medical Society; formerly practiced in DuQuoin, Ill., where he had been a member of the board of health; died October 11, aged 82.

Baird, Frank Bennett ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1907; team physician of the Philadelphia Athletics for many years; died October 23, aged 72, of carcinoma of the kidney.

Barber, John Phineas, Minneapolis; University of Louisville (Ky.) Medical Department, 1886; member of the American Medical Association; served on the staffs of St. Mary's and Deaconess hospitals; died October 13, aged 93.

Bate, James Robert, Tallahassee, Fla.; Meharry Medical College, Nashville, Tenn., 1931; died recently, aged 50, of essential hypertension.

Beckford, Henry Shedd ⊕ Lieutenant Colonel, U. S. Army, retired, Vancouver, Wash.; Dartmouth Medical School, Hanover, N. H., 1899; served during World War I; entered the medical corps of the U. S. Army as a major in 1920; promoted to lieutenant colonel in 1937; retired Oct. 31, 1938; died October 28, aged 76.

Bianchini Vincent Anthony, Cranston, R. I.; Boston University School of Medicine, 1934; member of the American Medical Association; served during World War II; on the staffs of St. Joseph's Hospital and Roger Williams General Hospital; died suddenly October 8, aged 41.

Bluhm, Kilian Kalonymos, New York; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1916; specialist certified by the American Board of Psychiatry and Neurology; member of the American Medical Association and the American Psychoanalytic Association; died October 6, aged 60.

Bowker, Alphonso Varion, Athol, Mass.; University of Vermont College of Medicine, Burlington, 1879; for many years a member of the school board, served as associate medical examiner in the district and a member of the board of health; died October 9, aged 93, of carcinoma of the prostate.

Brown, George W., Raeford, N. C.; Kentucky School of Medicine, Louisville, 1898; member of the American Medical Association; served two terms in the state legislature; for many years chairman of the county board of education; formerly mayor and coroner; died October 16, aged 78.

Cabell, Abram L., Terre Haute, Ind.; Howard University College of Medicine, Washington, D. C., 1895; member of the American Medical Association; died in Culver October 6, aged 84, of cerebral hemorrhage.

Cannon, Clair R., Ellsworth, Wis.; Marquette University School of Medicine, Milwaukee, 1913; member of the American Medical Association; died November 3, aged 59, of coronary thrombosis.

Carter, George Clayburn, Jamaica, N. Y.; Albany (N. Y.) Medical College, 1914; member of the American Medical Association; died in Columbia-Presbyterian Medical Center, New York, October 19, aged 59.

Champlin, Paul Morrow, East Orange, N. J.; Detroit College of Medicine and Surgery, 1914; formerly on the staff of the East Orange General Hospital; served during World War I; died October 24, aged 65, of pleurisy with effusion and cardiovascular disease.

Christensen, Bryant Elliott ⊕ Fort Bayard, N. Mex.; Cornell University Medical College, New York, 1925; certified by the National Board of Medical Examiners; served during World Wars I and II; affiliated with the Veterans Administration; died October 18, aged 52, of coronary thrombosis.

Clark, John Vincent, Oklahoma City; University of Oklahoma School of Medicine, Oklahoma City, 1939; member of the American Medical Association; served during World War II; affiliated with Capital Hill General Hospital, Wesley Hospital and Mercy Hospital, where he died September 20, aged 36, of subacute yellow atrophy of the liver and duodenal ulcer.

Coller, Granville J., Los Angeles; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1880; died in the Hospital of the Good Samaritan October 24, aged 96, of pneumonia.

Connole, Joseph Vincent ⊕ Wilkes-Barre, Pa.; Jefferson Medical College of Philadelphia, 1912; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staff of the Nesbitt Memorial Hospital, Kingston, and Mercy Hospital, where he died October 15, aged 61, of cerebral hemorrhage.

Cook, Arthur Ellsworth, Randolph, Neb.; Sioux City (Ia.) College of Medicine, 1898; for many years member of the board of education; member of the American Medical Association; past president of the Nebraska State Medical Association; died in Sioux City, Iowa, November 3, aged 80, of coronary thrombosis.

Craig, Samuel Halleck, Philadelphia; Jefferson Medical College of Philadelphia, 1910; died recently, aged 73.

Davidow, Samuel H., Youngstown, Ohio; Jefferson Medical College of Philadelphia, 1920; member of the American Medical Association; on the staff of Youngstown Hospital, where he died October 6, aged 54.

Disque, Andrew A., St. Joseph, Mo.; Central Medical College of St. Joseph, Mo., 1902; member of the American Medical Association; died September 16, aged 73.

Dobson, James Furman, Ridgeway, S. C.; University of Maryland School of Medicine, Baltimore, 1914; served overseas during World War I; president of the Ridgeway Bank; died in Tri-County Hospital, Orangeburg, September 22, aged 59, of cancer.

Dougherty, J. Milburn Sr., Nickelsville, Va.; Kentucky School of Medicine, Louisville, 1893; died September 6, aged 79.

Dunham, Adeline Frances, Cambridge, Mass.; Tufts College Medical School, Boston, 1905; member of the American Medical Association; died September 17, aged 68, of coronary thrombosis.

Dyer, Frank Merritt ⊕ Binghamton, N. Y.; Cornell University Medical College, New York, 1902; fellow of the American College of Surgeons; associated with Binghamton City Hospital and Binghamton State Hospital; consulting surgeon, Ideal Hospital, Endicott; died October 12, aged 78, of carcinoma of the prostate.

Eaton, Chelsea ⊕ Oakland, Calif.; University of Louisville (Ky) School of Medicine, 1926; died in San Francisco October 9, aged 52.

Ehresmann, Joseph John, Richmond Heights, Mo.; St. Louis University School of Medicine, 1905; member of the American Medical Association; died October 20, aged 72.

Evans, John Corliss, Cincinnati; Eclectic Medical Institute, Cincinnati, 1893; for many years associated with the New York Central Railroad; served on the board of education, on the staffs of the Bethesda Hospital and St. Mary's Hospital, where he died October 9, aged 78, of injuries received in an automobile accident.

Farrell, Robert Lawrence, Providence, R. I.; Tufts College Medical School, Boston, 1931; member of the American Medical Association; served in the European theater during World War II; associated with Rhode Island, St. Joseph's, Charles V. Chapin and the Roger Williams General hospitals; died October 3, aged 43, of hypertensive heart disease.

Low, Triumph C., ⊕ Los Angeles; Chicago Homeopathic Medical College, 1897; died September 17, aged 78, of pneumonia.

Lowe, Kenneth Vincent, New Kensington, Pa.; University of Pittsburgh School of Medicine, 1933; on the courtesy staffs of the Allegheny Valley Hospital, Tarentum, and Citizen's General Hospital; died in Columbia Hospital, Wilkinsburg, October 15, aged 42, of coronary occlusion.

McDonough, John Patrick ⊕ Corona Del Mar, Calif.; John A. Creighton Medical College, Omaha, 1920; for many years practiced in Gunnison, Colo.; killed October 5, aged 56, when the automobile which he was driving in Newport Beach was struck by a fire engine.

McDuffie, James Henry, Columbus, Ga.; University of Pennsylvania School of Medicine, Philadelphia, 1916; member of the American Medical Association; past president of the

Muscogee County Medical Society; served in France during World War I; died in City Hospital September 27, aged 62.

Macy, Mary Sutton, New York; New York Medical College and Hospital for Women, Homeopathic, 1904; formerly served on the faculty of her alma mater; medical examiner for the Pennsylvania Mutual Life Insurance Company; died October 15, aged 70.

Mahar, Gregory Doyle, Syracuse, N. Y.; Syracuse University College of Medicine, 1922; member of the American Medical Association, assistant professor of pediatrics at his alma mater; served as health commissioner of Syracuse and as epidemiologist for the city health department; affiliated with St. Joseph and City hospitals; died October 1, aged 58, of bronchopneumonia.

Margoles, Maxon Edward, Milwaukee; University of Wisconsin Medical School, Madison, 1930; on the staff of Mount Sinai Hospital, where he died October 8, aged 44, of coronary disease.

Mason, L. Dudley, Middletown, Ky.; University of Louisville Medical Department, 1902; member of the American Medical Association; served in the medical corps of the U. S. Army during World War I and on the Selective Service Board during World War II; died October 11, aged 74.

Massey, William Walton ⊕ Quincy, Fla.; University of Georgia Medical Department, Augusta, 1911; past president of the Third District Medical Society; on the staff of Gadsden County Hospital; died October 4, aged 62, of coronary occlusion.

Mayfield, James Isaac, Blue Mountain, Miss.; Memphis (Tenn.) Hospital Medical College, 1909; member of the American Medical Association; past president of the Northeast Mississippi Medical Society; for many years college physician at Blue Mountain College; served as president of the Bank of Blue Mountain; died in Baptist Memorial Hospital, Memphis, Tenn., October 12, aged 68, of congestive heart failure.

Middlebrooks, Violet McMillian, St. Petersburg, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; died October 5, aged 73, of renal insufficiency and renal calculi.

Moore, Dudley A., Lander, Wyo.; Sioux City (Ia.) College of Medicine, 1906; formerly associated with the Indian Service; died September 8, aged 71, of hemorrhage due to gastric ulcer.

Musante, Joseph Bernard, Glen Cove, N. Y.; University and Bellevue Hospital Medical College, New York, 1920; died in the North Country Community Hospital, October 3, aged 60, of cirrhosis of the liver.

Mutschler, Louis H. ⊕ Merion, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; fellow of the American College of Surgeons; consulting surgeon, Hospital of the Protestant Episcopal Church, where he was chief surgeon for many years; formerly surgeon of Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases and St. Christopher's Hospital for Children, Philadelphia; at one time associated with the Philadelphia Rapid Transit Company; died October 2, aged 78, of pneumonia.

Plummer, Orlay Edward ⊕ Rawlins, Wyo.; Emory University School of Medicine, Atlanta, 1931; formerly vice president of the Carbon County Medical Society; member of the American Association of Railway Surgeons and the Pacific Association of Railway Surgeons; served in the European theater during World War II; died September 26, aged 49, of hypertension.

Porter, Leroy Valentine, Altoona, Iowa; Drake University Medical Department, Des Moines, 1900; died in Woodward October 19, aged 78, of cancer.

Preston, Anna Louisa, Marietta, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896; died August 29, aged 87.

Price, Jerry Clay ⊕ Los Angeles; Tulane University of Louisiana School of Medicine, New Orleans, 1928; member of the Association for the Study of Internal Secretions; formerly associated with the Neurological Institute of New York in New York; died in Good Samaritan Hospital September 24, aged 46, of cancer.

Richards, George Henry ⊕ Sioux Falls, S. D.; Trinity Medical College, Toronto, Canada, 1904; served on the staff of the Veterans Administration Center; died in Ione, Wash., October 11, aged 71, of cerebral hemorrhage.

Rochester, John Robert Fountain, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1900; for many years on the staff of Women's Homeopathic Hospital; died September 14, aged 77.

Roeber, William John, Winters, Calif.; University of the City of New York Medical Department, New York, 1892; formerly practiced in Newark, N. J., where he was associated with Lutheran Memorial and St. Michael's hospitals and the Hospital of St. Barnabas and the Hospital for Women and Children; died September 26, aged 79.

Townsend, Charles Kennard ⊕ Arkadelphia, Ark.; Tulane University of Louisiana School of Medicine, New Orleans, 1915; served during World War I; died September 20, aged 60, of cerebral hemorrhage.

Tripp, Leroy Richard ⊕ Washington, Iowa; State University of Iowa College of Medicine, Iowa City, 1909; past president of the Woodbury County Medical Society; died September 20, aged 64, of bronchopneumonia and multiple sclerosis.

Vigeland, Jorg G., Brinsmade, N. D.; Milwaukee Medical College, 1910; died recently, aged 74.

Ward, Edgar Ewell, Dallas, Texas; Meharry Medical College, Nashville, Tenn., 1915; president of the Excelsior Life Insurance Company; died September 27, aged 58, of heart disease.

Warlick, Henry Clinton, Bluefield, W. Va.; University of Maryland School of Medicine, Baltimore, 1918; died in Lexington, Ky., recently, aged 57, of cerebral hemorrhage.

Weigel, Bernard John, Gorham, Kan.; John A. Creighton Medical College, Omaha, 1917; formerly surgeon in the U. S. Public Health Service reserve; served on the staff of the Russell City Hospital in Russell; died September 15, aged 54, of injuries received in an automobile accident.

Westly, Soren S. ⊕ Manly, Iowa; State University of Iowa College of Medicine, Iowa City, 1909; president of the Worth County Medical Society; vice president of the staff of Mercy Hospital in Mason City; died October 21, aged 68, of heart disease.

White, George Floyd, Cranston, R. I.; College of Physicians and Surgeons, Boston, 1905; formerly school committeeman; served on the courtesy staff of Roger Williams General Hospital, Providence, where he died September 23, aged 71, of arteriosclerotic heart disease, pyelonephritis and uremia.

Wilker, William Fawthrop ⊕ Iola, Wis.; State University of Iowa College of Medicine, Iowa City, 1928; formerly practiced in New York, where he was affiliated with the Lenox Hill Hospital; died September 30, aged 47, of coronary thrombosis.

Wills, William Judy ⊕ Springfield, Mo.; Beaumont Hospital Medical College, St. Louis, 1901; an Associate Fellow of the American Medical Association; member of the American Urological Association; served overseas during World War I; died in St. John's Hospital September 24, aged 75, of injuries received in an automobile accident.

Wilson, Thomas Phillip, St. Louis; Washington University School of Medicine, St. Louis, 1929; served during World War II; on the staff of St. Luke's Hospital; died October 4, aged 45, of coronary disease.

Wimmer, George Glenn ⊕ Mount Etna, Ind.; Beaumont Hospital Medical College, St. Louis, 1899; served during World War I; died in the Huntington (Ind.) County Hospital October 13, aged 75.

Wood, Samuel Houston ⊕ Jackson, Miss.; Chicago College of Medicine and Surgery, 1917; served overseas during World War I; on the rating board of the Veterans Administration; died in King's Daughters Hospital, Yazoo City, October 20, aged 58, of coronary thrombosis.

Wright, Elmer D., ⊕ Seymour, Ind.; Physio-Medical College of Indiana, Indianapolis, 1900; died September 25, aged 76, of chronic glomerulonephritis.

Wrinkle, Thomas D., Springfield, Mo.; Ensworth Medical College, St. Joseph, 1887; member of the American Medical Association; died October 11, aged 93.

Young, Josephine Estabrook, Evanston, Ill.; Northwestern University Woman's Medical School, Chicago, 1896; formerly on the faculty of her alma mater and Rush Medical College in Chicago; died October 4, aged 84, of cerebral hemorrhage.

Young, Lemon Randle, Indianapolis; Flint Medical College of New Orleans University, 1905; died September 26, aged 72, of cerebral hemorrhage.

Zander, Paul A., Kankakee, Ill.; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1908; member of the American Medical Association; on the staff of the Kankakee State Hospital, where he died September 23, aged 67, of uremia and diabetes mellitus.

FOREIGN LETTERS

LONDON

(From a Regular Correspondent)

Oct. 17, 1950.

Library Association Conference

Role of the Medical Library.—During the Annual Conference of the Library Association held recently in London, a meeting of the medical section was arranged at the Wellcome Research Institution, on September 20, to discuss the role of libraries in the advance of medicine. The chair was taken by Mr. W. R. Le Fanu, librarian of the Royal College of Surgeons. Sir Cecil Wakeley, the president of the college, said that the conference celebrated the centenary of the public library movement in Great Britain. Many medical libraries, of course, were much more than a century old, and they varied greatly in type and function. Many attempts have been made to coordinate the activities of various libraries. More than 40 years ago, when he first came to Oxford, Sir William Osler founded a Medical Library Association of Great Britain, but it proved short lived. Twenty years later Sir D'Arcy Power promoted a measure of cooperation among the medical libraries of London; the Royal Society of Medicine had organized, with the Rockefeller Foundation, the Central Medical Bureau, to act as a clearing house for readers' inquiries, to obtain the necessary literature from associated libraries and pass it on to all parts of the world in photographic reproduction.

The medical section of the Library Association founded in 1947 acted as a link between medical libraries and provided a forum for the discussion of common problems. Services to readers rather than conservation of books was the keynote of library work. The opportunity had therefore been taken to invite a number of leading representatives of varying interests to give their views on the present state of medical libraries and on the most urgent needs for their improvement.

Library Services for the Research Worker.—Dr. C. H. Kellaway, director in chief of the Wellcome Research Institution, said that, in general, medical research was a continuous process, an accumulation of facts until the time was ripe for their coordination and for the making of some generalization on which further research could be based. It was rare for scientific discoveries to break entirely new ground, and it was part of the library service to make sure of the connecting links. He emphasized the onus on the research worker himself to make a critical study of the relevant literature. He pointed out that one commonly found papers describing observations and results which, unknown to the writer, had been published some years before. However, he went on to point out the values of this repetition of earlier work, which was scarcely ever done by a worker of ability without some new angle of truth being brought into view. He also pointed out the difficulty of maintaining an efficient library service when units of an organization were scattered over a considerable area.

Role of the Librarian.—Dr. Hugh Clegg, editor of the *British Medical Journal,* said that medical librarianship was now a highly skilled profession for which an exacting training was necessary. A library that was solely a storehouse for books and periodicals had only a limited use for those ultimately responsible for the advance of medicine. The storehouse must be converted into something dynamic, and the instrument for this purpose was the trained librarian. He quoted the thirteenth edition of the Encyclopaedia Britannica (1926), which states that libraries are now coming to be regarded more and more as workshops. He emphasized the librarian's task of the collection of periodicals. It was an onerous one, especially now that textbooks were out of date as soon as they were published and the periodical had become more and more important.

Library Users.—Mr. Zachary Cope, a London surgeon, spoke as a library user who had received the most ungrudging help from medical libraries. He said libraries could diffuse medical knowledge more quickly than any other facility. The speaker said that he had recently had the duty of reviewing some German textbooks on surgery and had been surprised at the lack of knowledge concerning some things which were commonly known in this country, the use of penicillin for example. Many German libraries had been destroyed during the war, and free communication had been interrupted. Although much was being done to remedy these evils, the effect of the literature was still woefully apparent. The part of the library which was most valuable to the research worker was that concerned with current periodicals. There were 15,000 or more medical journals, and it was impossible for any library to carry more than a small proportion. He deplored the fact that young men depended on a librarian to look up their references for them. To look up one's own reference was a valuable means of education.

Prof. E. C. Dodds spoke of the Library of the Royal College of Physicians, part of which dated from the Great Fire and had an uninterrupted existence from the sixteenth century. At that library there were works on every subject—not only on medicine, but on astrology, theology and oriental philosophy. The library was now being carefully surveyed by the college authorities. He thought this extraordinary collection of books would be of great value to research.

Mr. W. A. Lees spoke of the librarian of an old provincial library founded by a few physicians and surgeons in Liverpool, about 170 years ago. He said that in these changing days it was difficult to foresee what might happen to the older established libraries depending for their income on subscriptions of members. This was how they would continue to play their part now that new libraries had been set up in teaching and other hospitals by the Regional Hospital Boards. He thought that there should be some method whereby these collections, made many years ago, could ke kept up to date and be useful for succeeding generations.

Medicine in the Public Library.—Mr. Geoffrey Stephens, librarian of the Borough of St. Marylebone, described an important scheme whereby each of the 28 London boroughs had accepted responsibility for specializing in their libraries in one particular branch of literature. Marylebone, probably because it included Marley Street and about twice as many hospitals as any other borough, as well as central pharmacies and orthopedic establishments, had been asked to specialize in medicine. The speaker had been reluctant to undertake this, foreseeing morbid curiosity on the part of the lay public, but a nucleus of the medical section had been created. Previous experience had shown that the demand was chiefly for preclinical literature of some standard encyclopedias. Requests came mainly from hospital nurses, medical students and those working in medical ancillary occupations. He thought the policy was a good one, although it had been better received than he, in his reluctance, had thought possible. Several of the speakers criticized public libraries specializing in medical literature. It was pointed out that it would be absurd to expect library committees, unless there were medical persons on them, to build up a useful section.

The Bibliophile Service.—Mr. G. R. Edwards, Secretary of the Royal Society of Medicine, said that the establishment of libraries in hospitals, teaching or otherwise, was an excellent idea. Facilities provided all over the country were woefully inadequate. The papers appearing in less easily available sources and the bibliophile documentation service which the Royal Society of Medicine had sponsored might be recommended.

A small nonprofit fee was charged as the service was extended from Reykjavic to Singapore. Hardly any day of the week passed without a film strip's being dispatched from London conveying information to medical persons in distant parts of the world, information which was unobtainable in their local libraries. Mr. Edwards applauded what had been said of the necessity of training medical librarians. Speed in obtaining the desired information was of great importance. In conclusion, the chairman said that all problems concerning the subject, including possibly the joining of forces of the libraries of smaller medical societies and the restoration of hospital libraries, were receiving careful consideration.

ITALY

(From a Regular Correspondent)

FLORENCE, Oct. 10, 1950.

International Meetings

At the International Meetings of Verona, reported on in a previous letter, Prof. E. Moniz of Lisbon, Nobel Prize winner, spoke on present day neurosurgery, with special regard to contributions made by the Portuguese. Sicard, through intraspinal injection of iodized oil, achieved precise location of compression of the medulla oblongata, but for cerebral tumors the problem was more serious. While Dandy's ventriculography was known, the method entailed risk for the patient. Moniz conceived the technic of tumor location by rendering the cerebral arteries opaque, to permit observation of the deviations of the arteries. The initial problems were (*1*) to obtain a liquid opaque to roentgen rays that could be injected without danger into cerebral circulation, (*2*) to ascertain whether the internal carotid artery tolerated the needle puncture and the injected substance and (*3*) to determine the possibility of temporary blocking of blood flow to the brain, without danger to the patient.

After many experiments, Moniz and his co-workers succeeded in obtaining arteriograms of arteries of the brain in dogs (in collaboration with Prof. Almeida Lima) and cerebral arteriograms in human cadavers, which revealed the normal distribution of arteries. After this experimental work, cerebral arteriography was performed clinically for the first time. At first sodium iodide was used as the contrast medium and then colloidal suspension of thorium dioxide (thorotrast®). This was subsequently replaced by easily eliminated iodine compounds. Cerebral tumors were diagnosed by this technic; the circulation of some tumors was observed and their volume determined. Also cerebral angiomas could be demonstrated and the differential diagnosis of cerebral aneurysms could be made.

The speaker was awarded the Nobel Prize for his work on prefrontal leukotomy. He stated that the reactions which take place at the synapsis are those which determine the mental makeup, and disturbances of these reactions cause the so-called functional psychosis. The concept of prefrontal leukotomy arose from the supposition that severing of diseased junctions would alter the pathway of the impulses, permitting cure of the mentally sick. The frontal lobes were chosen as the site of leukotomy because their function is linked, although vaguely, to the human mind. In the first 20 patients operated on by Prof. Almeida Lima in collaboration with Prof. Moniz, one third of the patients were cured, another third were improved and a third were unimproved. According to the speaker, further progress is needed in this field.

Treatment of Typhoid and Brucellosis

At the session of the Academy of Sciences of Ferrara, presided over by Professor Dogliotti, reports on modern treatment of typhoid and brucellosis were presented. Drs. Gualandi, Pederzini and Temussi reported on results they obtained in treatment of brucellosis with paraaminosalicylic acid and its calcium salt. The drug was administered by mouth in daily doses of 8 to 10 Gm. for 8 to 10 days. Defervescence by crisis occurred on the second or at the latest on the seventh day, with considerable improvement of the general condition. Drs. Sandri and Cavicchi reported their results with the use of chloramphenicol and aureomycin in typhoid, paratyphoid A and brucellosis. Both drugs were administered in doses of 0.25 Gm. every three hours, and the treatment was continued for a few days after normal temperatures were obtained. In brucellosis, apyrexia was obtained on the second or third day of treatment with aureomycin. In typhoid and paratyphoid A treated with chloramphenicol, there was a rapid drop in temperature followed by a definite improvement of the general condition and permanent cure. The patients with paratyphoid A who were treated initially with aureomycin did not show improvement, but recovery resulted from combined treatment with chloramphenicol. Drs. Ruberti and Neri reported on patients with typhoid treated with chloramphenicol; they observed a drop in temperature between the seventy-second and ninety-sixth hour after the start of treatment. They concluded, however, that such therapy does not influence the pathological process or prevent relapses and perforations. Drs. Magri and Melli reported on 13 cases of brucellosis treated with a daily dose of 1 Gm. of aureomycin. Defervescence was rapid and definitive in the majority of the cases.

TURKEY

(From a Regular Correspondent)

ANKARA, Nov. 15, 1950.

The 1950 Census

When the first census was taken in Turkey, in 1927, the population was 13,648,270; the second census, in 1935, showed an increase to 16,158,018; the third, in 1940, to 17,820,950, the fourth census, in 1945, to 18,860,222 and the fifth, taken on Oct. 22, 1950, to 20,902,628. Immigration accounts for an increase of about 20,000 persons. Istanbul, the largest city, has a population of 1,001,002, the capital, Ankara, has 285,143, Izmir has 230,473, Adana has 118,247 and Bursa has 101,096 inhabitants. The birth rate, 40-42 per thousand, is highest in rural communities, which contain 73 per cent of Turkey's population. The natural increase during the last five years is 21.3 per thousand. Birth control is prohibited by law since the 1930 public health act. Twenty-five years of public health work has raised the nation's standard of health, and the effect of untoward conditions resulting from the war have gradually disappeared.

Turkish Whooping Cough Vaccine

Epidemics of whooping cough occur in Turkey usually after an epidemic of measles in the spring. When in August 1948 an epidemic of whooping cough in the environs of Izmit (Smyrna) was reported, the Ministry of Health appointed Dr. Sabahaddin Payzin and Dr. Necmeddin Akyay from the Refik Saydam Institute of Hygiene at Ankara to administer the vaccine that had recently been prepared at this institute and to report on the results. Of the 646 children vaccinated 12, or 2.9 per cent, were 6 months old; 60, or 9.2 per cent, were 6 to 12 months old; 182, or 24 per cent, were 1 to 3 years old; 204, or 31.8 per cent, were 4 to 5 years old; 141, or 20 per cent, were 6 to 10 years old, and 30, or 4.6 per cent, were 10 to 20 years old. The patients received doses of 0.25, 0.50, 0.75, 1.00 and 1.5 cc. of vaccine with two to three day intervals. Of the 646 patients, 480, or 75 per cent, recovered. In children 1 to 5 years old, vomiting, whooping and coughing disappeared after the second and third vaccination; in children 5 to 10 years old, they disappeared somewhat later. Untoward reactions have not been observed. There was one death, caused by pneumonia, a complication of measles. Forty-two, or 6.5 per cent of the patients failed to return for vaccination. The vaccine was also used for preventive inoculation of 32 children; all remained immune during the epidemic. The Turkish whooping cough vaccine was prepared from domestic strains and used soon after preparation.

Central Anti-Tuberculosis Institute in Istanbul

An agreement has been reached by the World Health Organization of Geneva and the Ministry of Health and Social Assistance of the Turkish Republic according to which physicians and nurses from Middle East countries take a postgraduate course in antituberculosis work at the Central Anti-Tuberculosis Institute in Istanbul. WHO will furnish the equipment and will be responsible for the remuneration of the teaching staff and traveling expenses for participants in the course. The center is to function under the auspices of the World Health Organization for a limited time, and then it is to be an integral part of the Ministry of Health and Social Assistance and is to be directed by Turkish specialists. Currently the courses are directed by Dr. Etienne Berthet, WHO turberculosis consultant.

After completion of the theoretical and practical course in which almost all Middle East countries will be represented, the participants are to engage in antituberculosis work in their respective countries. Last summer Turkish physicians and nurses took a three month introductory course, which was the start of special training for Turkey's antituberculosis work. The Ministry of Health has required 95 Turkish physicians to take the first course, which is now in session. The theoretical course will be conducted by Ord. Prof. Tevkif Saglam of Istanbul University. The 500 bed tuberculosis sanatorium at the Heybeliada in the Sea of Marmara, the Haydar Pasha tuberculosis hospital, the 500 bed tuberculosis hospital at Yedikule, Istanbul, and the 14 tuberculosis dispensaries (to which 6 are soon to be added) will provide opportunity for practical experience.

The first society for the prevention of tuberculosis was established in Istanbul in 1916, but because of the prolongation of the war and the many untoward conditions after it, the society was short lived. Actual tuberculosis control work started in 1923 with the founding of the Izmir Society for the prevention of tuberculosis and the restablishment of the Istanbul Society in 1926. In 1931 the tuberculosis death rate in Istanbul was 203 per 100,000; it had decreased by 1939 to 187, but war conditions brought the rate up again. Ord. Prof. Tevkif Saglam has for more than 15 years directed the tuberculosis prevention work in Istanbul.

SPAIN

(From a Regular Correspondent)

Madrid, Oct. 1, 1950.

Roentgenography of the Small Intestine

Dr. C. Marina Fiol and his co-workers have published, since 1941, a series of roentgen studies on the pathology of the small intestine. It was discovered that in cases of superficial enteritis the passage of the contrast substance through the small intestine is either normal or delayed, contrary to the general opinion that passage is accelerated in this condition. They described an intestinal disorder characterized by effusions that generally coincide with emotional moments and that occur in labile young persons who suffer great anxiety and mental conflict. Roentgenologically, this syndrome is characterized by a rapid passage of the contrast substance through the small intestine. Dr. Fiol believes that this syndrome is purely functional. It is due to a vagal hypertonia. He calls it neurointestinal asthenia. The name has the same significance with respect to the small intestine as neurocirculatory asthenia has with respect to the circulatory system. Fiol and his co-workers also studied stagnation in the lower angle of the duodenum, which they believe is not due to functional stricture but to a superficial inflammation similar to that which occurs in sprue. They described superficial ileitis, which develops with clinical symptoms similar to those of appendicitis. In 1941, the authors described a series of roentgen areolar images of the terminal ileum that show diffuse hyperplasia of the lymphatics of the intestine. (This roentgen aspect was described by American roentgenologists in 1945.) The authors consider that this syndrome is physiological in children and pathological in adults. They called it follicular ileitis, a name used by German pathologists who saw this type of hyperplasia only in the cadavers of children dying of diarrhea. The authors point out that Crohn's disease is rare in Spain. They note that various factors may play a role in the development of this syndrome. Changes in the ileum with rigidity and loss of the structural characters of the mucosa, which the author calls granulomatous ileitis, is frequent in Spain. This condition probably constitutes the early phase of Crohn's disease. The authors described, also, a clinical form of ileitis following typhoid, characterized by lesions in the terminal segment of the ileum. In one patient post-typhoid ileitis was followed by Crohn's syndrome. The most important roentgen observations reported are those by which an early diagnosis of intestinal tuberculosis is made. According to the authors, the terminal segment of the ileum is most frequently involved by early lesions. In many cases a nodule, the "alarm nodule," is observed in the upper external portion of the ileum. This nodule, caused by hyperplasia of Peyer's patches, becomes ulcerous. Pictures of round and annular tuberculous ulcers were obtained by the production of pressure on the terminal segment of the ileum. The initial lesions often disappear after a short time. In other cases, however, they are the starting point of large tuberculous lesions, the diagnosis of which can be made only by evidence of the classic roentgen aspects of intestinal tuberculosis, namely, lesions in the cecum and in the ileocecal sphincter and the presence of Stierlin's radiologic sign. Fiol has also carried on clinical and roentgen studies on sprue and other syndromes of the small intestine that are secondary to diseases of other organs and apparatus. He discusses the mechanism and the roentgen and clinical aspects of these diseases in his book "Roentgenography of the Small Intestine," recently published in Spain.

Psychosomatic Pathology

A school of psychosomatic pathology has begun to function in the department of neuropsychiatry of the General Hospital of Madrid. Professor J. J. López Ibor, head of this department, is also director of the school. Weekly sessions are held at which various related subjects and illnesses are discussed. Professor López Ibor and his associates are trying to establish the principles for a general psychosomatic pathology. If the large number of articles on the subject, especially those of the American School, are analyzed, the psychic profile that accompanies somatic diseases is evident. A group of somatic diseases, such as arterial hypertension, hyperthyroidism, migraine, anuresis and mucomembranous colitis, constitute the true nucleus of psychosomatic pathology. Among the elements of the psychological profile, the aggressive tendencies, a perfectionist tendency and tendencies of an obsession type are dominant. Anxiety is fundamental in all cases. A profound psychopathological interpretation of the character of patients with any of the aforementioned diseases shows that all have an "anxiety structure." The aggressive tendencies, the obsessions and the phobias in these patients are outward manifestations of this anxiety structure. Besides these, other work in progress includes a psychopathological study of marihuana addicts and studies of the indications for transorbital leukotomy.

Prof. López Ibor is official speaker at the next International Congress of Psychiatry. He will speak on "Indications of Biologic Methods in Psychiatric Diseases." Dr. Guera, head of the psychology department of the same clinic, is also official speaker at the congress. He will speak on "Methods of Projection in the Psychiatric Clinic."

BRAZIL

(From a Regular Correspondent)

RIO DE JANEIRO, Nov. 10, 1950.

Intestinal Schistosomiasis

Manson schistosomiasis, or intestinal mansoniasis, is a more important health problem in Brazil than it seemed five years ago. Exact knowledge of the prevalence of the principal helminthiases throughout this large country is still fragmentary, even for the most important ones, i. e., hookworm disease and intestinal schistosomiasis. The national department of health in 1947 planned a five year uniform survey of diseases caused by helminths, to ascertain their geographic distribution and incidence throughout the country. Because of the limited personnel and appropriations, it was decided to restrict the survey to school children (7-14 years of age) of localities of 1,500 inhabitants or more. A recent report by Drs. A. Barca Pellon and Isnard Teixeira describes the work done during the first three years of the survey, which included 11 of the 20 states of Brazil, in the northeastern and middle eastern Atlantic states, represented by 889 localities with a present population of over 4,500,000. The first part of the survey was begun in July 1947 in the northeastern states of Alagoas and Sergipe, already known as important foci of the infestation, and was extended, in 1948, to Pernambuco and Minas Gerais (first half), and in 1949 to Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Espirito Santo and Minas Gerais (second half), to be concluded on June 24 of this year, in the state of Bahia. For the performance of all phases of this enormous survey of the eastern third of the country, the cooperation of local health and educational authorities, mayors, teachers, postmasters and railroad station masters was secured. The technic used for the microscopic examination of the stools was the spontaneous sedimentation concentration method of Hoffmann, Pons and Janer, already extensively tested in Brazil by J. A. Meira and Vianna Martins.

Completion of the first part of the School Helminthologic Survey, as it is currently called, took 757 days of effective work, costing 3,061,627.30 Brazilian cruzeiros, the equivalent of about $153,000, for the examination of 440,786 school children, an average of 582.28 persons examined per day and 495.26 per locality. The average cost per child examined was about 34.7 cents. Of the 646,409 children registered in the schools of the 889 localities surveyed, 440,786 were examined, or 68.19 per cent, this percentage ranging from the minimum of 46.26 for the 30 localities of the state of Sergipe to 81.68 for the 221 localities of the state of Bahia. Of the 889 localities included in the survey, 611 had cases of infestation. The minimum number of cases in a locality was 7, in the state of Maranhão, and the maximum 211, in the state of Bahia. The total number of school children with infestation was 44,477, or a general index of positivity of 10.09 per cent for the sample surveyed, this index ranging from the minimum of 0.04 per cent for the state of Piauí (four cases in 10,424 children examined) to the maximum of 29.80 per cent for the state of Sergipe (5,134 cases in 50,977 children examined). There were, however, large variations of the index of positivity within each state: thus, in Sergipe, for example, where the index was maximum (29.80), it varied, for the 30 localities with positive cases, from 1.30 to 91.34, for the locality Rosario do Catete in the central part of the state, one of the five districts into which Sergipe is divided. Even by districts, which in this small state include an average of six localities for each, the variation of the positivity index is also great, decreasing from 62.82 for the central district, to 28.49, 21.62, 12.94 and 3.19, for the coastal, west, middle and lower São Francisco River districts, respectively.

Plotted on the map of the country, these results show that intestinal schistosomiasis infestation forms small more or less sparse foci in the northern states of Maranhão, Piauí, Ceará and Rio Grande do Norte (with a general positivity index for the zone of 1.07, which varied from 0.04 (Piauí) to 2.32 (Rio Grande do Norte), to take a more regional character of large zonal foci, in the states of Paraíba, Pernambuco, Alagoas, Sergipe and Bahia, in the bulge of northeastern Brazil, with a general positivity index of 19.42, ranging from 7.49 for the state of Paraíba, to 25.09 for Pernambuco and up to 29.80 for Sergipe. The area of endemicity of the parasitosis is broken by the valley of the São Francisco River, so that, in the state of Bahia, the general index for the whole region of this valley, the western plateau and the southern part of the state, close to Minas Gerais, falls to 3.81. For the state of Minas Gerais itself, more to the south, the general index is 4.92, with 0.04, in the southern zone, and 12.09, 16.62 and 30.02 in other zones of the same state.

Of the 611 localities with positive stools for ova of the parasite, only 381 showed positivity indexes higher than 4 per cent. If one takes into account that the average number of children examined per locality was 495.26, this minimum incidence would correspond to at least 19 cases of infestation per locality, which is probably a number of cases sufficient to characterize the existence of a focus, since those cases would involve children of school age. The incidence is significantly higher in male than in female children and higher in children living in rural districts than in towns. Typical of these differences are the figures for Sergipe, the state with the highest general positivity index: 32.98 against 27.15 for the two sexes and 36.46 to 29.37 for the character of the district of residence.

Erythrocyte Values of Adolescent Workers in Rio de Janeiro

Dr. Rubens Bastos of the Division of Industrial Hygiene, Ministry of Labor, published a report on the study of the erythrocyte values of adolescent workers (14 to 17 years) of both sexes, with the establishment of the curves of age distribution of the corpuscular values within those age limits. The report represents another Brazilian contribution to the knowledge of the variation of the red cell characteristics in connection with some social, geographic and anthropologic factors. The study was based on a group of 745 subjects of both sexes (471 males and 274 females) from 14 to 17 years of age. All were born in Rio de Janeiro or had lived in that city several years. Of the 471 males, 301 were white and 170 colored; of the 274 females, 133 were white and 141 colored. These adolescent workers were employed in industrial establishments (textiles, glass, rubber, metal foundries, carpentry), and all had been previously subjected to a simple medical examination, including a roentgenogram of the chest. The main results of the study may be summarized as follows: the mean corpuscular hemoglobin concentration is identical in both sexes at age 14 and is practically the same, but begins to be different for the boys, at ages 15, 16 and 17. This difference is very slight between ages 14 and 15 and between ages 16 and 17, but is larger and significant between these two groups. The mean corpuscular volume and the mean corpuscular hemoglobin present a similar variation. Contrary to the results of Milan and Muench, no significant differences were observed between white and colored persons. A last important point is represented by the age at which the erythrocyte value in the male is stabilized. In the adult man, in Rio de Janeiro, the mean corpuscular hemoglobin concentration is not less than 14.54 per cent, which is the average for the 17 year group.

CORRESPONDENCE

TOUR OF THE FAR EAST

To the Editor:—Having just completed (Oct. 30, 1950) a six weeks' tour of the Army and some of the Navy and Air Force medical facilities in the Far East, including those in the Inchon-Seoul area, I feel that the impressions gained might be of interest to the profession, especially to those who served in World War II and those who anticipate military service. My tour as Consultant in Internal Medicine to the Surgeon General of the Army afforded the opportunities of observing problems on the spot, of seeing problem cases, of making ward rounds, of participating in conferences and briefings, of getting the "low down" from former students as well as from those with whom I had served in the South Pacific in World War II, of discussions with head nurses and dieticians and of having the Army Theatre Consultant in Internal Medicine for the Far East, Col. Francis Pruitt, accompany me throughout the tour. It is on these opportunities that the following impressions of the functioning of the United States Army Medical Corps in the present conflict are based:

1. The personnel of the military services received and are receiving superior medical care, which is conducted at times under most trying circumstances. Medical personnel and supplies in medical facilities in Japan were grossly depleted to provide immediate treatment of the wounded in the forward areas. Countless lives were saved by the evacuation of patients by air to hospitals in Japan. As of October 9, more than 17,000 had been transferred in this manner. Patients leaving Pusan by air were in a modern hospital, the 118th Station Hospital at Fukuoka, in one hour. A considerable number of patients were picked up in forward positions by helicopters. It is my opinion that Mr. Drew Pearson was misinformed or uninformed concerning the military medical services in the Far East. Otherwise, his public statements would have been closer to fact.

2. The number of doctors and nurses were inadequate until about October 5. Momentarily the medical staff of the Army Tokyo General Hospital of 1,200 beds (expanded to 2,000 beds later) was reduced to seven physicians—a measure necessary to provide emergency care at the front. A maximum of efficiency was made possible by the improved policy of appropriate assignment of specially trained personnel when this was practicable—a policy which is kept up to date by the functioning of the theatre consultants.

3. A great medical tragedy was avoided by having, on immediate call, physicians taking residency courses in military and civilian hospitals under the auspices of the Army. When the peak demand for doctors was reached, more than 50 per cent of the physicians in this theatre were physicians whose residencies had been abruptly interrupted. At one time all the medical officers except the commanding officers of five hospitals were physicians whose residency training had been interrupted. It is important for everyone interested in the care of military personnel to know that, had it not been for the Residency Training Program adopted by the Army after World War II, our forces would have been faced with the tragedy of a crippling inadequacy of physicians when called on to enter a suddenly precipitated and unanticipated conflict. The unavoidable delay of 90 days in getting reserves into action would have cost many lives, and the care of the sick and injured could not have been anything but inferior. Surely, foresight in training could not have been turned to better advantage.

In an age in which the onset of conflict is likely to be sudden and unexpected a reservoir of physicians with more than average training and available on a moment's notice is invaluable. We will do well to appreciate the sacrifices these young physicians have made and from one who has seen them in action, not for an eight or 10 hour day but until the job at hand was done—days on end with only a few hours' respite—they have my sincere admiration.

4. The absence of serious epidemics. Dysentery, due to Shigella organisms, was common but relatively mild and responded promptly to chloramphenicol therapy. The most serious illness encountered has been Japanese B encephalitis. The mortality ranged from 10 to 15 per cent, and tragic residual manifestations are common. Fortunately the season for this disease ended in October. Hepatitis is endemic but is not a great military problem. Two deaths occurred in one week from this disease when the total number of such patients being treated was approximately 100. The reappearance of a mortality, due to hepatitis, in troops is due, in all probability, to the impaired nutritional and physical state of the patient as a result of combat and not a change in the virulence of the virus. A small number of cases of scrub typhus has been seen.

Garfield G. Duncan, M.D.
330 South Ninth Street,
Philadelphia 7.

BANTHINE® IN THE THERAPY OF PEPTIC ULCER

To the Editor:—Various agents (vagotomy, the atropine-belladonna group) have been used to lessen vagal function in the treatment of peptic ulcer. Recently, a new anticholinergic drug, banthine® (beta-diethylaminoethyl xanthene-9-carboxylate methobromide), has been made available to the medical profession for this purpose. The drug is apparently a valuable adjunct to the therapy of peptic ulcer. Only too often in the past has a new therapeutic remedy been enthusiastically received and then as energetically rejected. On the basis of my personal experience with a fairly large series of ulcer patients, I wish to outline the following suggestions regarding the use of banthine.®

1. The amount advocated by Grimson seems too large for most patients. My co-workers and I have found 50 mg., instead of 100 mg., given orally, sufficient. Admittedly, a small percentage of patients tolerate the larger dose.

2. To prevent meal-induced vagal activity, the drug should be given before meals rather than every six hours, although another dose on retiring and one during the night is approved.

3. Since our studies of ulcer patients in the Gastro-Intestinal Clinic of Mount Sinai Hospital have not shown any constant inhibitory effect of 100 mg. of banthine® on gastric secretion, we advocate the concomitant use of alkalis.

4. Except for investigational purposes, we do not consider it fair either to the patient or to the drug to permit an ulcer patient to be treated with banthine® alone without regard to tissue aggression factors, such as an irritating diet, tobacco and alcohol.

5. Occasionally patients with severe nocturnal pains are not relieved by banthine® but do respond to my continuous intragastric drip therapy.

6. Males with present or impending prostatism should not be given the drug. Pyloric obstruction also seems to be a contraindication. A small percentage of patients complain of general malaise and weakness (sympathetic factors?) and cannot tolerate the drug.

[illegible] Library
[illegible] Medical College
[illegible]
32666

7. The complete loss of symptoms in most patients with uncomplicated peptic ulcer is immediate and gratifying. In my experience no other drug previously used has given such excellent symptomatic results in such a large percentage of patients. It is probable, although this requires further study, that the beneficial effects result either from decreased motor activities or from some degree of sympathetic block.

In our experience, patients may become symptomless and the ulcer heal or not. It is, therefore, imperative that while the patients are being treated with this drug they have repeated radiographic studies. Future studies may reveal that healing occurs when the acid factor is controlled.

Asher Winkelstein, M.D.,
1185 Park Avenue, New York 28.

RETIREMENT AT SIXTY-FIVE

To the Editor:—A patient from Waterloo, Iowa, has brought up a point on which I have felt strongly for some time, namely, forced retirement of business executives at the age of 65. I suppose that this practice, which is prevalent in many corporations, has one advantage—it allows earlier promotion of younger men. I am also sure that many men who reach the age of 65 are no longer fit to carry on their duties. I am sure, however, that you will agree with me that one cannot use any age limit as a criterion of when a man is or is not fit to carry on. With the modern advances in medicine, age 65 is no longer considered as old as it used to be. Many men are really in their prime at that age and stay that way for five, 10 or even 20 years more.

It seems to me that a campaign could be started among corporations and in medical schools and other universities to offset previous practices in this regard. In its place, such large institutions might have a committee which would judge as to the fitness of every person as he approaches the age of 65. If the committee decided that a man had all his faculties, he would be kept on in his position as long as he retained those faculties. To avoid possible complaints, this committee should be composed of both older and younger men. As a corollary, such large institutions would do well if they would insist that those approaching the age of 65 should have thorough physical examinations at stated intervals, at least once a year. This would weed out a number who are physically unfit to carry on and would make room for the younger executives.

Leon Unger, M.D.,
185 North Wabash Avenue,
Chicago 1.

USE OF SODIUM CHLORIDE SOLUTION FOR SHOCK

To the Editor:—The letter of Drs. Rosenthal and Tabor (*J. A. M. A.* **144**:413 [Sept. 30] 1950) is timely in its emphasis on the need for simplifying the treatment of shock, especially in its early stage. It is regrettable that there is no reference to the outstanding advocate of the use of isotonic sodium chloride solution in large amounts for shock. Dr, Frederick M. Allen, on the basis of his own work and scattered observations in the literature, was the first to introduce tourniquet shock as a standardized laboratory procedure. He was the first to interpret shock as a mixture of physical and toxic factors (*Arch. Surg.* **38**:155 [Jan.] 1939). He advocated isotonic sodium chloride solution as being equal to and sometimes superior to plasma for shock and burns (*Am. J. Surg.* **61**:79, 1943; **62**:80, 1943). The availability of the solution in practically unlimited quantities should be brought to the attention of those charged with the setting up of disaster centers, especially as these will be staffed largely with lay personnel.

Vincent Hurley, M.D.,
40 East Sixty-First Street, New York.

SEXUAL EFFECTS OF VASECTOMY

To the Editor:—In the July issue of The Journal there appeared an article by Garrison and Gamble on the effects of vasectomy. I have been interested in the surgical correction of male sterility for the past 30 years and have frequently been confronted with the problems of the patient who has undergone vasectomy; for this reason I feel that some comment on this subject is in order. These authors state that the use of vasectomy has been limited because the average male is apprehensive of a handicap in his sexual life as a result of the procedure. They further state that they performed vasectomy in 23 cases because the couple had "as many children as they wanted or could care for adequately." One patient spoke of a wife "almost crazy with worry." Nineteen other patients were sterilized because of "physical disabilities" of the wife. Kidney disease, diabetes, difficult labor and asthma are mentioned as conditions in the wife which served as an indication for sterilizing the husband. In eight patients the husband was operated on because he had neurosyphilis, diabetes, rheumatism, multiple sclerosis, asthma, blindness or deafness. The authors state that, after an experience of 50 procedures on "unselected mentally normal patients," they found that 47 of the 50 (and, as stated by their husbands, all the wives) were satisfied with the results of the operation.

This subject seems to me to have been dealt with, in this instance, in a rather superficial manner. The surgeon that considers doing a vasectomy for any purpose other than the direct treatment of local disease must know that in practically every state in the Union this operative procedure is considered an illegal one. Furthermore, the patient may sue the surgeon and recover damages under the law, even though he, the patient, has stated under oath that he requested that the operation be done.

The psychic and emotional effects of vasectomy are much greater and more deeply rooted than an analysis of such factors as "effect on libido," "postorgasmal symptoms" and "frequency of intercourse" would indicate. Making a man "safe sexually" has often resulted in marital infidelity, domestic discord, separation and divorce. These experiences are frequent in our records in contrast with those quoted by the authors in their 50 cases.

The average physician may be tempted to recommend vasectomy as the easy and safe way to effect sterilization. The operation is simple, devoid of risk and entails no immediate disability worthy of mention. Such advice should not be given lightly. Most experienced urologists will agree that profound sexual neuroses and imaginative ills often follow vasectomy when it has been performed purely to prevent pregnancy. This is true especially of the private patient and perhaps less so in the clinic patient.

Experienced surgeons will demand more valid indications for male sterilization than those advanced by Garrison and Gamble. In addition, they may wisely insist on neuropsychiatric help in the preoperative appraisal of some of these patients and their problems. I know of no surgical procedure which makes the operator more vulnerable to the complaints of a disgruntled patient than a male "sterilization" that has been done without considered judgment on the part of all concerned.

Vincent J. O'Conor, Professor of Urology,
Northwestern University Medical School, Chicago 11.

The medicolegal aspects of operations to produce sterility were discussed in a statement prepared by the Bureau of Legal Medicine and Legislation and published in The Journal Nov. 12, 1949, page 810.—Ed.

Council on Medical Education and Hospitals

ESTABLISHMENT OF CONFERENCE COMMITTEE ON GRADUATE TRAINING IN SURGERY

By action of the Board of Trustees of the American Medical Association, the Board of Regents of the American College of Surgeons and the American Board of Surgery, a Conference Committee on Graduate Training in Surgery has been established. The purpose of this committee is to formulate uniform standards for residency training in surgery, to sponsor a single inspection service for hospitals offering such training and to approve and publish a list of acceptable residency programs. Lists thus approved by the conference committee will be published in THE JOURNAL and in the *Bulletin of the American College of Surgeons* at periodic intervals. The first of these lists of approved residencies for surgical training appears below.

Hospitals desiring approval of residency training in surgery should make application for inspection on behalf of the Conference Committee on Graduate Training in Surgery to the Secretary of the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

SURGERY

The following services have been approved by the Council, the American Board of Surgery and the American College of Surgeons. Approval for training in hospitals listed in the 1950 Internship and Residency Number (**142**:1204-1211 [April 15]), but not included in this list, will be extended to July 1, 1951, as previously announced. Approval for training in hospitals not listed in the 1950 Internship and Residency Number but included in this list is retroactive to July 1, 1950. Hospitals designated by an asterisk offer approved training in surgery of less than three years' duration, which is integrated with or contributory to a fully approved program.

Name of Hospital	Location	Length of Approved Program, Years
United States Army		
Letterman Army Hospital	San Francisco	4
Fitzsimons Army Hospital	Denver	4
Army Medical Center	Washington, D. C.	4
Brooke Army Medical Center	San Antonio, Texas	4
Gorgas Hospital	Ancon, C. Z.	3
Tripler Army Hospital	Honolulu, T. H.	3
United States Navy		
U. S. Naval Hospital	Oakland, Calif.	4
U. S. Naval Hospital	San Diego, Calif.	4
U. S. Naval Hospital	Great Lakes, Ill.	*
U. S. Naval Hospital	Bethesda, Md.	4
U. S. Naval Hospital	Chelsea, Mass.	4
U. S. Naval Hospital	St. Albans, N. Y.	4
U. S. Naval Hospital	Philadelphia	4
U. S. Public Health Service		
U. S. Marine Hospital	San Francisco	3
U. S. Marine Hospital	New Orleans	3
U. S. Marine Hospital	Baltimore	3
U. S. Marine Hospital	Boston	3
U. S. Marine Hospital	Stapleton, S. I., N. Y.	3
U. S. Marine Hospital	Seattle	3
Federal Security Agency		
Freedmen's Hospital	Washington, D. C.	4
Veterans Administration		
Veterans Admin. Hospital	Tuskegee, Ala.	3
Veterans Admin. Hospital	Long Beach, Calif.	4
Veterans Admin. Hospital	Los Angeles	4
Veterans Admin. Hospital	San Francisco	4
Veterans Admin. Hospital	Fort Logan, Colo.	4
Veterans Admin. Hospital	Newington, Conn.	4
Veterans Admin. Hospital	Washington, D. C.	4
Veterans Admin. Hospital	Coral Gables, Fla.	3
Veterans Admin. Hospital	Chamblee, Ga.	3
Veterans Admin. Hospital	Hines, Ill.	4
Veterans Admin. Hospital	Indianapolis	4
Veterans Admin. Hospital	Des Moines	4
Veterans Admin. Hospital	Wadsworth, Kan.	3
Veterans Admin. Hospital	Wichita, Kan.	3
Veterans Admin. Hospital	Louisville, Ky.	4
Veterans Admin. Hospital	New Orleans	4
Veterans Admin. Hospital	Fort Howard, Md.	4
Veterans Admin. Hospital	Perry Point, Md.	4
Veterans Admin. Hospital (West Roxbury)	Boston	4
Veterans Admin. Hospital	Framingham, Mass.	4
Veterans Admin. Hospital	Dearborn, Mich.	4
Veterans Admin. Hospital	Minneapolis	4
Veterans Admin. Hospital	Jefferson Barracks, Mo.	4
Veterans Admin. Hospital	Lincoln, Neb.	3
Veterans Admin. Hospital	Albuquerque, N. M.	3
Veterans Admin. Hospital	Buffalo	3
Veterans Admin. Hospital	New York City	4
Veterans Admin. Hospital	Staten Island, N. Y.	4
Veterans Admin. Hospital	Cleveland	4
Veterans Admin. Hospital	Dayton, Ohio	4
Veterans Admin. Hospital	Oklahoma City	4
Veterans Admin. Hospital	Portland, Ore.	4
Veterans Admin. Hospital	Aspinwall, Pa.	4
Veterans Admin. Hospital	Columbia, S. C.	4
Veterans Admin. Hospital	Memphis, Tenn.	4
Veterans Admin. Hospital	Nashville, Tenn.	4
Veterans Admin. Hospital	Dallas, Texas	4
Veterans Admin. Hospital	Houston, Texas	4
Veterans Admin. Hospital	McKinney, Texas	4
Veterans Admin. Hospital	Salt Lake City	4
Veterans Admin. Hospital	White River Jct., Vt.	4
Veterans Admin. Hospital	Richmond, Va.	4
Veterans Admin. Hospital	Martinsburg, W. Va.	3
Veterans Admin. Hospital	Milwaukee	4
Nonfederal		
Carraway Methodist Hospital	Birmingham, Ala.	3
Jefferson-Hillman Hospital	Birmingham, Ala.	4
Lloyd Noland Hospital	Fairfield, Ala.	4
University Hospital	Little Rock, Ark.	4
Herrick Memorial Hospital	Berkeley, Calif.	3
San Joaquin General Hospital	French Camp, Calif.	3
General Hospital of Fresno County	Fresno, Calif.	3
California Hospital	Los Angeles	3
Cedars of Lebanon Hospital	Los Angeles	3
Hospital of the Good Samaritan	Los Angeles	3
Los Angeles County Hospital	Los Angeles	4
Queen of Angels Hospital	Los Angeles	3
St. Vincent's Hospital	Los Angeles	3
White Memorial Hospital	Los Angeles	3
[illegible]	Oakland, Calif.	3
[illegible]	Oakland, Calif.	*
[illegible]	Oakland, Calif.	4
Samuel Merritt Hospital	Oakland, Calif.	*
San Bernardino County Charity Hosp.	San Bernardino, Calif.	3
Mercy Hospital	San Diego, Calif.	3
San Diego County General Hospital	San Diego, Calif.	3
Franklin Hospital	San Francisco	4
French Hospital	San Francisco	*
Mount Zion Hospital	San Francisco	4
St. Joseph's Hospital	San Francisco	3
St. Mary's [illegible]	San Francisco	3
San Franci [illegible]	San Francisco	4
Southern P [illegible]	San Francisco	3
Stanford University Hospital	San Francisco	4
University of California Hospital	San Francisco	4
Santa Barbara Cottage Hospital	Santa Barbara, Calif.	3
Los Angeles County Harbor General Hospital	Torrance, Calif.	3
Mercy Hospital	Denver	3
Presbyterian Hospital	Denver	3
St. Anthony Hospital	Denver	3
St. Joseph's Hospital	Denver	3
St. Luke's Hospital	Denver	3
University of Colorado Medical Center		
Colorado General Hospital	Denver	4
Denver General Hospital	Denver	4
Corwin Hospital	Pueblo, Colo.	3
Bridgeport Hospital	Bridgeport, Conn.	3
Hartford Hospital	Hartford, Conn.	4
St. Francis Hospital	Hartford, Conn.	3
New Britain General Hospital	New Britain, Conn.	3
Grace-New Haven Community Hospital		
Grace Unit	New Haven, Conn.	3
New Haven Unit (University Service)	New Haven, Conn.	4
Hospital of St. Raphael	New Haven, Conn.	3
Waterbury Hospital	Waterbury, Conn.	3
Delaware Hospital	Wilmington, Del.	4
Memorial Hospital	Wilmington, Del.	3
Central Dispensary and Emergency Hospit	Washington, D. C.	4
Gailinger	Washington, D. C.	4
Garfield	Washington, D. C.	3
Georgeto	Washington, D. C.	4
George Washington University Hosp.	Washington, D. C.	4
Providence Hospital	Washington, D. C.	4
Duval Medical Center	Jacksonville, Fla.	3
St. Vincent's Hospital	Jacksonville, Fla.	3
Jackson Memorial Hospital	Miami, Fla.	3
Crawford W. Long Memorial Hospital	Atlanta, Ga.	3
Grady Memorial Hospital	Atlanta, Ga.	4
Piedmont Hospital	Atlanta, Ga.	3
University Hospital	Augusta, Ga.	3
Emory University Hospital	Emory University, Ga.	3
American Hospital	Chicago	3
Augustana Hospital	Chicago	4
Chicago Memorial Hospital	Chicago	3
Children's Memorial Hospital	Chicago	*
Cook County Hospital	Chicago	4
Grant Hospital	Chicago	3
Illinois Masonic Hospital	Chicago	3
Lutheran Deaconess Home and Hosp.	Chicago	3
Mercy Hospital-Loyola Univ. Clinics	Chicago	4

SURGERY—Continued

Name of Hospital	Location	Length of Approved Program, Years
Nonfederal—Continued		
Michael Reese Hospital	Chicago	4
Mount Sinai Hospital	Chicago	3
Passavant Memorial Hospital	Chicago	4
Presbyterian Hospital	Chicago	4
Provident Hospital	Chicago	3
Research and Educational Hospitals	*Chicago*	4
St. Elizabeth Hospital	Chicago	3
St. Joseph Hospital	Chicago	3
St. Luke's Hospital	Chicago	4
St. Mary of Nazareth Hospital	Chicago	3
University of Chicago Clinics	Chicago	4
Wesley Memorial Hospital	Chicago	4
Evanston Hospital	Evanston, Ill.	4
St. Francis Hospital	Evanston, Ill.	3
West Suburban Hospital	Oak Park, Ill.	3
St. Francis Hospital	Peoria, Ill.	*
Clinic Hospital	Bluffton, Ind.	3
Indianapolis General Hospital	Indianapolis	3
Indiana University Medical Center	Indianapolis	4
Methodist Hospital	Indianapolis	3
St. Vincent's Hospital	Indianapolis	3
St. Elizabeth's Hospital	Lafayette, Ind.	3
Iowa Methodist Hospital	Des Moines	3
University Hospital	Iowa City	4
St. Margaret's Hospital	Kansas City, Kan.	3
University of Kansas Medical Center	Kansas City, Kan.	4
Wesley Hospital	Wichita, Kan.	8
St. Joseph's Hospital	Lexington, Ky.	3
Louisville General Hospital	Louisville, Ky.	4
Norton Memorial Infirmary	Louisville, Ky.	*
St. Joseph Infirmary	Louisville, Ky.	4
Charity Hospital of Louisiana	New Orleans	4
Ochsner Foundation Hospital	New Orleans	3
Southern Baptist Hospital	New Orleans	3
Touro Infirmary	New Orleans	3
Shreveport Charity Hospital	Shreveport, La.	3
Maine General Hospital	Portland, Maine	3
Baltimore City Hospitals	Baltimore	4
Church Home and Hospital	Baltimore	3
Franklin Square Hospital	Baltimore	4
Johns Hopkins Hospital	Baltimore	4
Lutheran Hospital	Baltimore	3
Maryland General Hospital	Baltimore	3
Mercy Hospital	Baltimore	4
Provident Hospital and Free Disp.	Baltimore	3
St. Agnes Hospital	Baltimore	3
St. Joseph's Hospital	Baltimore	3
Sinai Hospital	Baltimore	4
South Baltimore General Hospital	Baltimore	3
Union Memorial Hospital	Baltimore	4
University Hospital	Baltimore	4
Beverly Hospital	Beverly, Mass.	3
Beth Israel Hospital	Boston	4
Boston City Hospital	Boston	3
Carney Hospital	Boston	3
Children's Hospital	Boston	3
Massachusetts General Hospital	Boston	4
Massachusetts Memorial Hospitals	Boston	4
New England Center Hospital	Boston	4
New England Hospital for Women and Children	Boston	3
Peter Bent Brigham Hospital	Boston	4
St. Elizabeth's Hospital	Boston	3
Mount Auburn Hospital	Cambridge, Mass.	3
Truesdale Hospital	Fall River, Mass.	*
Newton-Wellesley Hospital	Newton Mass.	3
Salem Hospital	Salem, Mass.	*
Springfield Hospital	Springfield, Mass.	3
Pondville Hospital	Walpole, Mass.	*
Memorial Hospital	Worcester, Mass.	3
St Vincent Hospital	Worcester, Mass.	4
Worcester City Hospital	Worcester, Mass.	3
St. Joseph's Mercy Hospital	Ann Arbor, Mich.	3
University Hospital	Ann Arbor, Mich.	4
Leila Y Post Montgomery Hospital	Battle Creek, Mich.	3
Alexander Blain Hospital	Detroit	3
Charles Godwin Jennings Hospital	Detroit	3
City of Detroit Receiving Hospital	Detroit	3
Evangelical Deaconess Hospital	Detroit	3
Grace Hospital	Detroit	4
Harper Hospital	Detroit	4
Henry Ford Hospital	Detroit	4
Mount Carmel Mercy Hospital	Detroit	3
Providence Hospital	Detroit	3
St. Joseph's Mercy Hospital	Detroit	3
Wayne County General Hospital and Infirmary	Eloise, Mich.	3
Hurley Hospital	Flint, Mich.	3
Blodgett Memorial Hospital	Grand Rapids, Mich.	3
Butterworth Hospital	Grand Rapids, Mich.	4
St. Mary's Hospital	Grand Rapids, Mich.	3
Highland Park General Hospital	Highland Park, Mich.	3
Bronson Methodist Hospital	Kalamazoo, Mich.	3
Pontiac General Hospital	Pontiac, Mich.	3
Saginaw General Hospital	Saginaw, Mich.	3
Minneapolis General Hospital	Minneapolis	3
Northwestern Hospital	Minneapolis	*
St. Barnabas Hospital	Minneapolis	3
University of Minnesota Hospitals	Minneapolis	4
Mayo Foundation	Rochester, Minn.	3
Ancker Hospital	St. Paul, Minn.	4
Charles T. Miller Hospital	St. Paul, Minn.	3
Lutheran Hospital	Vicksburg, Miss.	3
Mercy Hospital-Street *Memorial*	*Vicksburg, Miss.*	3

SURGERY—Continued

Name of Hospital	Location	Length of Approved Program, Years
Nonfederal—Continued		
Kansas City General Hospital No. 1	Kansas City, Mo.	3
Research	Kansas City, Mo.	3
St. Josept	Kansas City, Mo.	3
St. Luke's	Kansas City, Mo.	3
Barnes Hospital	St. Louis	4
DePaul	St. Louis	3
Homer	St. Louis	4
Jewish	St. Louis	3
Missouri	St. Louis	3
St. Johı	St. Louis	3
St. Lou	St. Louis	*
St. Lou	St. Louis	4
St. Mar	St. Louis	4
Bishop Clarkson Memorial Hospital	Omaha, Neb.	*
Creighton Memorial St. Joseph's Hosp.	Omaha, Neb.	3
University of Nebraska Hospital	Omaha, Neb.	3
Mary Hitchcock Hospital	Hanover, N. H.	*
Atlantic City Hospital	Atlantic City, N. J.	3
Cooper	Camden, N. J.	3
West Jer	Camden, N. J.	3
Jersey Ci	Jersey City, N. J.	3
Burlingtc	Mount Holly, N. J.	3
Hospital of St. Barnabas and for Women and Children	Newark, N. J.	3
Newark Beth Israel Hospital	Newark, N. J.	3
Paterson General Hospital	Paterson, N. J.	3
Albany Hospital	Albany, N. Y.	4
Binghamton City Hospital	Binghamton, N. Y.	3
Beth-El Hospital	Brooklyn	3
Brooklyn Cancer Institute	Brooklyn	*
Brooklyn Hospital	Brooklyn	3
Coney Island Hospital	Brooklyn	3
Cumberland Hospital	Brooklyn	4
Greenpoint Hospital	Brooklyn	3
Jewish Hospital	Brooklyn	4
Kings County Hospital	Brooklyn	4
Long Island College Hospital	Brooklyn	4
Maimonides Hospital	Brooklyn	3
Methodist Hospital	Brooklyn	3
Norwegian Lutheran Deaconesses' Home and Hospital	Brooklyn	3
St. Catherine's Hospital	Brooklyn	3
St. John's Episcopal Hospital	Brooklyn	3
St. Mary's Hospital	Brooklyn	3
Wyckoff Heights Hospital	*Brooklyn*	3
Buffalo General Hospital	Buffalo	4
Deaconess Hospital	Buffalo	3
Edward J. Meyer Memorial Hospital	Buffalo	4
Millard Fillmore Hospital	Buffalo	3
Sisters of Charity Hospital	Buffalo	3
Clifton Springs Sanitarium and Clinic.	Clifton Springs, N. Y.	3
Mary Imogene Bassett Hospital	Cooperstown, N. Y.	3
Flushing Hospital and Dispensary	Flushing, N. Y.	3
Meadowbrook Hospital	Hempstead, N. Y.	4
Jamaica Hospital	Jamaica, N. Y.	3
Mary Immaculate Hospital	Jamaica, N. Y.	3
Queens General Hospital	Jamaica, N. Y.	4
Charles S. Wilson Memorial Hospital	Johnson City, N. Y.	3
Nassau Hospital	Mineola, N. Y.	4
Mount Vernon Hospital	Mount Vernon, N. Y.	3
New Rochelle Hospital	New Rochelle, N. Y.	3
Bellevue Hospital		
Div. I—Columbia University	New York City	3
Div. II—Cornell University	New York City	4
Div. III—New York University	New York City	4
Div. IV—Open Division	New York City	4
Beth Israel Hospital	New York City	3
Bronx Hospital	New York City	3
Flower and Fifth Avenue Hospital	New York City	4
Fordham Hospital	New York City	3
French Hospital	New York City	3
Goldwater Memorial Hospital	New York City	4
Harlem Hospital	New York City	4
Knickerbocker Hospital	New York City	3
Lenox Hill Hospital	New York City	3
Lincoln Hospital	New York City	3
Memorial Hospital	New York City	3
Metropolitan Hospital	New York City	4
Montefiore Hospital for Chronic Diseases	New York City	3
Morrisania City Hospital	New York City	3
Mount Sinai Hospital	New York City	4
New York City Hospital	New York City	3
New York Hospital	New York City	4
New York Polyclinic *Medical School* and Hospital	New York City	3
Presbyterian Hospital	New York City	4
Roosevelt Hospital	New York City	4
St. Clare's Hospital	New York City	3
St. Luke's Hospital	New York City	4
St. Vincent's Hospital	New York City	4
University Hospital	New York City	4
United Hospital	Port Chester, N. Y.	*
Genesee Hospital	Rochester, N. Y.	4
Highland Hospital	Rochester, N. Y.	3
Rochester General Hospital	Rochester, N. Y.	3
St. Mary's Hospital	Rochester, N. Y.	3
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.	4
	Schenectady, N. Y.	8
	Syracuse, N. Y.	3
	Valhalla, N. Y.	3
	Charlotte, N. C.	3
Duke Hospital	Durham, N. C.	4
Lincoln Hospital	Durham, N. C.	3

SURGERY—Continued

Name of Hospital	Location	Length of Approved Program, Years
Nonfederal—Continued		
Watts Hospital	Durham, N. C.	3
North Carolina Baptist Hospital	Winston-Salem, N. C.	4
Children's Hospital	Akron, Ohio	*
City Hospital	Akron, Ohio	4
Peoples Hospital	Akron, Ohio	4
Aultman Hospital	Canton, Ohio	3
Mercy Hospital	Canton, Ohio	4
Children's Hospital	Cincinnati	*
Christ Hospital	Cincinnati	3
	Cincinnati	4
	Cincinnati	3
	Cincinnati	3
	Cincinnati	3
City Hospital	Cleveland	4
Cleveland Clinic Hospital	Cleveland	3
Lutheran Hospital	Cleveland	4
Mount Sinai Hospital	Cleveland	4
St. Alexis Hospital	Cleveland	3
St. John's Hospital	Cleveland	4
St. Luke's Hospital	Cleveland	4
St. Vincent Charity Hospital	Cleveland	3
University Hospitals	Cleveland	4
Mount Carmel Hospital	Columbus, Ohio	3
Ohio State University Hospital	Columbus, Ohio	4
St. Francis Hospital	Columbus, Ohio	*
White Cross Hospital	Columbus, Ohio	3
Miami Valley Hospital	Dayton, Ohio	3
Huron Road Hospital	East Cleveland, Ohio	3
Lakewood Hospital	Lakewood, Ohio	3
St. Rita's Hospital	Lima, Ohio	3
Maumee Valley Hospital	Toledo, Ohio	3
Mercy Hospital	Toledo, Ohio	3
St. Vincent's Hospital	Toledo, Ohio	3
Toledo Hospital	Toledo, Ohio	3
St. Elizabeth's Hospital	Youngstown, Ohio	4
Youngstown Hospital	Youngstown, Ohio	4
St. Anthony Hospital	Oklahoma City	3
University Hospitals	Oklahoma City	3
Hillcrest Memorial Hospital	Tulsa, Okla.	3
Emanuel Hospital	Portland, Ore.	3
St. Vincent's Hospital	Portland, Ore.	3
University of Oregon Medical School Hospitals and Clinics	Portland, Ore.	4
Abington Memorial Hospital	Abington, Pa.	3
Allentown Hospital	Allentown, Pa.	3
Sacred Heart Hospital	Allentown, Pa.	3
St. Luke's Hospital	Bethlehem, Pa.	3
Bradford Hospital	Bradford, Pa.	*
Bryn Mawr Hospital	Bryn Mawr, Pa.	3
George F. Geisinger Memorial Hospital	Danville, Pa.	3
Easton Hospital	Easton, Pa.	*
Hamot Hospital	Erie, Pa.	3
St. Vincent's Hospital	Erie, Pa.	3
Harrisburg Polyclinic Hospital	Harrisburg, Pa.	4
St. Joseph's Hospital	Lancaster, Pa.	3
Children's Hospital	Philadelphia	*
Episcopal Hospital	Philadelphia	3
Germantown Dispensary and Hospital	Philadelphia	4
Graduate Hospital of the Univ. of Pennsylvania	Philadelphia	3
Hahnemann Hospital	Philadelphia	4
Hospital of the University of Pennsylvania	Philadelphia	4
Jefferson Medical College Hospital	Philadelphia	4
Jewish Hospital	Philadelphia	3
Lankenau Hospital	Philadelphia	4
Methodist Episcopal Hospital	Philadelphia	3
Mount Sinai Hospital	Philadelphia	3
Pennsylvania Hospital	Philadelphia	4
Philadelphia General Hospital	Philadelphia	3
Presbyterian Hospital	Philadelphia	3
Temple University Hospital	Philadelphia	3
Woman's Hospital	Philadelphia	3
Children's Hospital	Pittsburgh	*
Mercy Hospital	Pittsburgh	3
Montefiore Hospital	Pittsburgh	3
Pittsburgh Hospital	Pittsburgh	3
Pittsburgh Medical Center-Presbyterian Hospital	Pittsburgh	3
St. Francis Hospital	Pittsburgh	3
Western Pennsylvania Hospital	Pittsburgh	4
Reading Hospital	Reading, Pa.	3
St. Joseph's Hospital	Reading, Pa.	3
Robert Packer Hospital	Sayre, Pa.	4
	Williamsport, Pa.	3
	York, Pa.	3
	Providence, R. I.	3
	Charleston, S. C.	4
Baroness Erlanger Hospital	Chattanooga, Tenn.	3
Knoxville General Hospital	Knoxville, Tenn.	3
Baptist Memorial Hospital	Memphis, Tenn.	4
John Gaston Hospital	Memphis, Tenn.	4
Methodist Hospital	Memphis, Tenn.	3
St. Joseph Hospital	Memphis, Tenn.	3
Geo. W. Hubbard Hospital of Meharry Medical College	Nashville, Tenn.	3
Nashville General Hospital	Nashville, Tenn.	3
St. Thomas Hospital	Nashville, Tenn.	4
Vanderbilt University Hospital	Nashville, Tenn.	4
Baylor University Hospital	Dallas, Texas	3
Gaston Hospital	Dallas, Texas	*
Parkland Hospital	Dallas, Texas	4
Univ. of Texas Medical Branch Hosp. John Sealy Hospital	Galveston, Texas	4
Hermann Hospital	Houston, Texas	3
Jefferson Davis Hospital	Houston, Texas	4
M. D. Anderson Hospital for Cancer Research	Houston, Texas	*
Methodist Hospital	Houston, Texas	*
St. Joseph Infirmary	Houston, Texas	3
Scott and White Hospital	Temple, Texas	3
Wichita Falls Clinic Hospital	Wichita Falls, Texas	3
Dr. W. H. Groves Latter-Day Saints Hospital	Salt Lake City	3
Holy Cross Hospital	Salt Lake City	*
St. Mark's Hospital	Salt Lake City	3
Salt Lake County General Hospital	Salt Lake City	4
Mary Fletcher Hospital	Burlington, Vt.	3
Alexandria Hospital	Alexandria, Va.	3
University of Virginia Hospital	Charlottesville, Va.	4
Chesapeake and Ohio Hospital	Clifton Forge, Va.	3
Norfolk General Hospital	Norfolk, Va.	4
Medical College of Virginia Hospital Division	Richmond, Va.	4
Jefferson Hospital	Roanoke, Va.	3
Lewis-Gale Hospital	Roanoke, Va.	*
King County Hospital Unit No. 1 (Harborview)	Seattle	4
Virginia Mason Hospital	Seattle	3
Beckley Hospital	Beckley, W. Va.	3
Charleston General Hospital	Charleston, W. Va.	3
Chesapeake and Ohio Hospital	Huntington, W. Va.	*
St. Mary's Hospital	Huntington, W. Va.	3
Laird Memorial Hospital	Montgomery, W. Va.	3
St. Joseph's Hospital	Parkersburg, W. Va.	3
Myers Clinic Hospital	Philippi, W. Va.	3
Madison General Hospital	Madison, Wis.	3
State of Wisconsin General Hospital	Madison, Wis.	3
Columbia Hospital	Milwaukee	3
Milwaukee Children's Hospital	Milwaukee	*
Milwaukee County Hospital	Milwaukee	3
Milwaukee Hospital	Milwaukee	3
St. Joseph's Hospital	Milwaukee	3
Queen's Hospital	Honolulu, Hawaii	3
San Juan City Hospital	San Juan, Puerto Rico	3

The following services are approved by the Council as offering satisfactory training of one or two years' duration, in preparation for residency training in the surgical specialties (Surgical Residencies, *J. A. M. A.* **142:**1216 [April 15] 1950).

Name of Hospital	Location
U. S. Public Health Service	
U. S. Marine Hospital	Detroit
U. S. Marine Hospital	Cleveland
Federal Security Agency	
St. Elizabeths Hospital	Washington, D. C.
Nonfederal	
City Hospital	Mobile, Ala.
St. Joseph's Hospital	Phoenix, Ariz.
Tucson Medical Center	Tucson, Ariz.
Arkansas Baptist Hospital	Little Rock, Ark.
St. Vincent Infirmary	Little Rock, Ark.
Glendale Sanitarium and Hospital	Glendale, Calif.
Seaside Memorial Hospital	Long Beach, Calif.
Santa Fe Coast Lines Hospital	Los Angeles
Collis P. and Howard Huntington Memorial Hospital	Pasadena, Calif.
Children's Hospital	San Francisco
Mary's Help Hospital	San Francisco
St. Luke's Hospital	San Francisco
Santa Clara County Hospital	San Jose, Calif.
Community Hospital of San Mateo	San Mateo, Calif.
St. John's Hospital	Santa Monica, Calif.
Children's Hospital	Denver
Colorado State Hospital	Pueblo, Colo.
Lawrence and Memorial Associated Hospitals	New London, Conn.
Norwalk	Norwalk, Conn.
St. Mary	Waterbury, Conn.
Doctors	Washington, D. C.
Sibley M	Washington, D. C.
Riverside	Jacksonville, Fla.
St. Luke's	Jacksonville, Fla.
Orange M	Orlando, Fla.
Georgia Baptist Hospital	Atlanta, Ga.
St. Joseph	Atlanta, Ga.
Henrotin	Chicago
Hospital	Chicago
Illinois C	Chicago
Loretto Hospital	Chicago
	Chicago
	Chicago
	Chicago
	Chicago
	Chicago
Little Company of Mary Hospital	Evergreen Park, Ill.
Methodist Hospital of Central Illinois	Peoria, Ill.
Ball Memorial Hospital	Muncie, Ind.
St. Francis Hospital	Wichita, Kan.
Good Samaritan Hospital	Lexington, Ky.
Hotel Dieu, Sisters' Hospital	New Orleans
Bon Secours Hospital	Baltimore
Suburban Hospital	Bethesda, Md.
Lahey Clinic	Boston

SURGERY—Continued

Name of Hospital	Location
Nonfederal—Continued	
Cambridge City Hospital	Cambridge, Mass.
Lynn Hospital	Lynn, Mass.
Malden Hospital	Malden, Mass.
Quincy City Hospital	Quincy, Mass.
Detroit Memorial Hospital	Detroit
Woman's Hospital	Detroit
Asbury Hospital	Minneapolis
Lutheran Deaconess Home and Hospital	Minneapolis
Swedish Hospital	Minneapolis
St. Louis County Hospital	Clayton, Mo.
Ellis Fischel State Cancer Hospital	Columbia, Mo.
Menorah Hospital	Kansas City, Mo.
St. Mary's Hospital	Kansas City, Mo.
Missouri Methodist Hospital	St. Joseph, Mo.
St. Anthony's Hospital	St. Louis
Missouri Baptist Hospital	St. Louis
St. Luke's Hospital	St. Louis
Montana Deaconess Hospital	Great Falls, Mont.
Hackensack Hospital	Hackensack, N. J.
Monmouth Memorial Hospital	Long Branch, N. J.
Mountainside Hospital	Montclair, N. J.
Fitkin Memorial Hospital	Neptune, N. J.
Presbyterian Hospital	Newark, N. J.
Muhlenberg Hospital	Plainfield, N. J.
Mercer Hospital	Trenton, N. J.
St. Francis Hospital	Trenton, N. J.
Children's Hospital	Buffalo, N. Y.
Mary McClellan Hospital	Cambridge, N. Y.
Gouverneur Hospital	New York City
Hospital for Special Surgery	New York City
Lebanon Hospital	New York City
Mother Cabrini Hospital	New York City
New York Infirmary	New York City
Sydenham Hospital	New York City
White Plains Hospital	White Plains, N. Y.
James Walker Memorial Hospital	Wilmington, N. C.
City Memorial Hospital	Winston-Salem, N. C.
Kate Bitting Reynolds Memorial Hospital	Winston-Salem, N. C.
Bismarck Hospital	Bismarck, N. D.
St. Luke's Hospital	Fargo, N. D.
Trinity Hospital	Minot, N. D.
St. Thomas Hospital	Akron, Ohio
Deaconess Hospital	Cincinnati
Fairview Park Hospital	Cleveland
Doctors Hospital	Cleveland Heights, Ohio
St. Elizabeth Hospital	Dayton, Ohio
Mercy Hospital	Hamilton, Ohio
Wesley Hospital	Oklahoma City
St. John's Hospital	Tulsa, Okla.
Providence Hospital	Portland, Ore.
Harrisburg Hospital	Harrisburg, Pa.
Hazelton State Hospital	Hazelton, Pa.
Doctors Hospital	Philadelphia
Frankford Hospital	Philadelphia
Hospital of the Woman's Medical College of Pennsylvania	Philadelphia
Misericordia Hospital	Philadelphia
St. Joseph's Hospital	Philadelphia
St. Mary's Hospital	Philadelphia
Allegheny General Hospital	Pittsburgh
	Washington, Pa.
	Wilkes-Barre, Pa.
	Wilkes-Barre, Pa.
Columbia Hospital	Wilkinsburg, Pa.
Columbia Hospital	Columbia, S. C.
Mid-State Baptist Hospital	Nashville, Tenn.
Brackenridge Hospital	Austin, Texas
Methodist Hospital	Dallas, Texas
St. Paul's Hospital	Dallas, Texas
Harris Hospital	Fort Worth, Texas
Southern Pacific Hospital	Houston, Texas
Thomas D. Dee Memorial Hospital	Ogden, Utah
Bishop DeGoesbriand Hospital	Burlington, Vt.
Arlington Hospital	Arlington, Va.
Elizabeth Buxton Hospital	Newport News, Va.
Riverside Hospital	Newport News, Va.
DePaul Hospital	Norfolk, Va.
St. Elizabeth Hospital	Richmond, Va.
Doctors Hospital	Seattle
Providence Hospital	Seattle
Swedish Hospital	Seattle
St. Luke's Hospital	Spokane, Wash.
Kanawha Valley Hospital	Charleston, W. Va.
LaCrosse Lutheran Hospital	LaCrosse, Wis.
Methodist Hospital	Madison, Wis.
Evangelical Deaconess Hospital	Milwaukee
Mount Sinai Hospital	Milwaukee
St. Luke's Hospital	Milwaukee
St. Mary's Hospital	Milwaukee

INTERNSHIPS AND RESIDENCIES

The following internship and residency training programs have been approved since the publication of the list of Approved Residencies and Fellowships in THE JOURNAL, April 15, 1950. A number of hospitals not included in this list have recently been surveyed by representatives of the Council and have been recommended for residency approval. These hospitals will be notified as soon as final action on their applications has been completed. A list of these services will appear in the Hospital Number of THE JOURNAL.

ADDITIONAL INTERNSHIPS APPROVED

Name of Hospital	Location
United States Army	
Army and Navy General Hospital	Hot Springs, Ark.
United States Navy	
U. S. Naval Hospital	Oceanside, Calif.
Veterans Administration	
Veterans Admin. Hospital	Long Beach, Calif.
Veterans Admin. Hospital	Houston, Texas
Nonfederal	
J. J. McCook Memorial Hospital	Hartford, Conn.
Columbus City Hospital	Columbus, Ga.
Alexian Brothers Hospital	Chicago, Ill.
Walther Memorial Hospital	Chicago, Ill.
New England Center Hospital	Boston, Mass.
Prospect Heights Hospital	Brooklyn, N. Y.
Northern Westchester Hospital	Mount Kisco, N. Y.
Mercy Hospital	Charlotte, N. C.

ADDITIONAL RESIDENCIES APPROVED

Allergy	
Johns Hopkins Hospital	Baltimore
Milwaukee County Hospital	Milwaukee
Anesthesiology	
Veterans Admin. Hospital	Lincoln, Neb.
New England Center Hospital	Boston
Contagious Diseases	
Camden Municipal Hospital	Camden, N. J.
Dermatology and Syphilology	
Veterans Admin. Hospital	Milwaukee
Gastroenterology	
Letterman Army Hospital	San Francisco
Veterans Admin. Hospital	Richmond, Va.
Temple University Hospital	Philadelphia
General Practice	
Methodist Hospital of Southern California	Los Angeles
Mercy Hospital	Muskegon, Mich.
Benedictine Hospital	Kingston, N. Y.
Bradford Hospital	Bradford, Pa.
Madison Rural Hospital and Sanitarium	Madison College, Tenn.
Internal Medicine	
Presbyterian Hospital-Olmsted Memorial	Los Angeles
Community Hospital of San Mateo County	San Mateo, Calif.
Wyckoff Heights Hospital	Brooklyn
Malignant Diseases	
Presbyterian Hospital-Olmsted Memorial	Los Angeles
Neurological Surgery	
Beth Israel Hospital	New York City
Obstetrics and Gynecology	
St. Luke's Hospital	Milwaukee
Ophthalmology	
U. S. Marine Hospital	Staten Island, N. Y.
Veterans Admin. Hospital	Brooklyn
Eye and Ear Hospital of Los Angeles	Los Angeles
Jewish Hospital	Brooklyn
Syracuse Medical Center	Syracuse, N. Y.
Orthopedic Surgery	
Sea View Hospital	Staten Island, N. Y.
Pathology	
St. Luke's Hospital	New Bedford, Mass.
Pediatrics	
Mary Immaculate Hospital	Jamaica, N. Y.
Good Samaritan Hospital	Cincinnati
Physical Medicine and Rehabilitation	
Research and Educational Hospitals	Chicago
Psychiatry	
University of Louisville Services Louisville General Hospital Norton Memorial Infirmary	Louisville, Ky.
Northampton State Hospital	Northampton, Mass.
Pulmonary Diseases	
Norwich State Hospital	Norwich, Conn.
Radiology	
Veterans Admin. Hospital	Indianapolis
Jackson Memorial Hospital	Miami, Fla.
Protestant Deaconess Hospital	Evansville, Ind.
Cambridge City Hospital	Cambridge, Mass.
Lynn Hospital	Lynn, Mass.
Harlem Hospital	New York City
Genesee Hospital	Rochester, N. Y.
St. Joseph's Hospital	Reading, Pa.
St. Joseph's Hospital	Milwaukee
Thoracic Surgery	
Veterans Admin. Hospital	Jefferson Barracks, Mo.

Medical Motion Pictures

Laboratory Diagnosis of Tuberculosis. Parts I, II and IV: 16 mm., black and white, sound. Produced in 1949 by and procurable on loan from United States Public Health Service, Communicable Disease Center, 605 Volunteer Building, Atlanta 3.

The purpose of this series of motion pictures is to aid in teaching the preparation of the Lowenstein-Jensen-Holm egg-potato flour medium for diagnostic cultivation of tubercle bacilli. Recent publicity has focused attention on the importance of roentgenograms of the chest as a means of diagnosing pulmonary tuberculosis. It should be pointed out that this method, though helpful as a screening procedure, is not the final criterion of specific diagnosis of tuberculosis. The finding of tubercle bacilli is the only sure proof.

These films give the complete story of all the steps needed for specific bacteriologic identification of the tubercle bacillus.

Part I: Preparation of a Culture Medium. Showing time 14 minutes.

This film presents in great detail the preparation of the Lowenstein-Jensen-Holm egg-potato flour medium which is generally accepted as one of the most satisfactory for this purpose, because it can be easily prepared even in a small laboratory, it inhibits growth of contaminating bacteria, it supports growth of all three strains of tubercle bacilli (human, bovine and avian) and it permits preliminary identification of each strain by colony appearance.

Part II: Preparation of Sputum Specimens. Showing time 16 minutes.

This section gives the step by step technic of preparation of the sputum specimen for cultivation. Exact strain identification is extremely important for prognostic purposes.

Part III is still in production.

Part IV: Typing of Tubercle Bacilli by Animal Inoculation.

This film illustrates the technic of animal inoculation and eventually of the autopsy and the interpretation of the observations for the purpose of strain determination. It is commendable that emphasis is placed on sources of error. A broken test tube is used as an illustration of possible danger, and the importance of sanitary precautions is clearly shown. The bacteriologic technic is excellent and will impress the attentive observer. The technics are simple, easy to follow and require no elaborate instruments.

Only a color film can bring out certain features that will of necessity be missed in a black and white film. For example, the fine details of the postmortem observations in the animals are not very clear in part IV. With this one exception this series of pictures is a good illustration that black and white films can still be used to great advantage. This series is well organized for teaching and is highly recommended for teaching of bacteriologists, medical students, public health laboratory technicians and students of medical technology. Clinical pathologists and teachers of bacteriologic technic will find this production most useful and interesting. The photography and narration are excellent.

Intra Oral and Pharyngeal Structure and Their Movements. 16 mm., color, sound, showing time 18 minutes. Produced in 1950 by the Veterans Administration, Department of Medicine and Surgery. Procurable on loan from Chief, Medical Illustration Division, Research and Education Service, Veterans Administration, Washington, D. C.

This film shows the physiological activity of the tongue, soft palate and epiglottis in a patient who suffered the loss of a portion of the face as a result of a cancer arising in the maxillary sinuses. The heroic cooperation of the subject and the ingenuity of those who fitted him with an artificial, transparent palate as well as other unusual devices enable the film to show the activities of these structures during the acts of mastication, swallowing, speaking and smoking.

Parts of the narration are not clear, particularly the reference to the supposed role of the frenum in limiting the rotation of the tongue and the reference to a "network" of glands. It is to be hoped that the authors will have an opportunity to make further photographs of this subject, who is making such a valuable contribution to medical science.

The film will be most informative and inspiring to medical students, especially in the course devoted to physiology of mastication and deglutition. For teaching purposes, it would be desirable to abbreviate the long section devoted to mastication and swallowing. It will also be important to otorhinolaryngologists and oral surgeons. Given a more systematic treatment of the subject of speech, the film could have been made more valuable to the specialist in the subject of speech rehabilitation. The teaching value of the film would have been enhanced by the addition of animated sequences of some of the action illustrated. The photography is excellent.

Human Beginnings. 16 mm., sound, color, 760 feet, showing time 21 minutes. Produced in 1950 by Eddie Albert Productions, Hollywood, Calif. Directed by Lester F. Beck, Department of Psychology, University of Oregon and photographed with children of the Walt Whitman School, New York City. Procurable on rental from Association Films, Inc., 35 West 45th Street, New York 19. For sale only to educational organizations under license.

The first half of the film portrays a class of 6 year old boys and girls discussing how they think a baby grows. The children illustrate their own ideas with simple clay models and drawings. Some of these reflect hostility and fear. After about 10 minutes of running time, there is a subtitled pause in the picture that would permit discussion of the classroom scenes already viewed by an audience of children or adults. In the second part of the film, one child tells about his baby sister and the story moves into this child's home. The mother and father explain about the new baby and how it will be born. Later the mother and new baby are shown at the hospital, with details of how the baby is cared for and how it nurses at the mother's breast. After the mother and baby come home, the social adjustment of the child to the baby is illustrated. The second half of the film is well done, effectively illustrating the well intentioned parents' efforts to properly brief the child about the birth of the baby, to bring about acceptance of the new arrival and later to develop a feeling of security for the older child through participation in the activities related to its care.

This film was reviewed by a group of health educators and a psychiatrist. Their reaction to the picture was totally different. Therefore, it was decided to publish both points of view.

The psychiatrist commented as follows: A generation ago, criticisms of this film would almost certainly have been raised on the grounds that, although it is expressly intended for showing to groups of all ages, the questions it explores should not be raised with "tender" or "impressionable" children. Today, fortunately, such strictures would trouble only those parents or teachers who have remained blind to the disturbing misconceptions and trepidations children develop when they are not properly instructed and prepared for this important event in their lives. The film has minor technical defects of voice recording in its early sequences, whereas its second section cannot, of course, explore all ramifications of the important parent-child interactions with which it deals. Nevertheless, the film is perhaps the best audiovisual medium to date for introducing the subject of children's attitudes toward childbirth for supervised classroom discussion, Parent-Teachers Association meetings or psychological study groups.

The health educators stated: Unfortunately there is serious question about the merit of the first part of the film. From a technical standpoint, the discussion of the children in its early phases is difficult to understand. While the material presented does demonstrate the innermost feelings of the children concerned, it not only points up misconceptions about birth but portrays feelings on the part of some of the children which border on the traumatic. Seeing the distorted attitudes in the first half of the film could be an unhealthy educational experience for children whose attitudes are wholesome and undeveloped. From this standpoint, it is not recommended as a film for young children. On the other hand, it is an excellent film for parents, child study and teacher education groups. The photography is excellent, however the direct recording in the classroom is poor.

CURRENT MEDICAL LITERATURE

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

20:801-900 (Sept.) 1950

Accurate Method for Glucose Determination. J. L. Pope.—p. 801.

Flame Photometer in Determination of Sodium and Potassium. E. C. Proehl and W. P. Nelson.—p. 806.

The Testes, Breast and Prostate of Men Who Die of Cirrhosis of Liver. H. S. Bennet, A. H. Baggenstoss and H. R. Butt.—p. 814.

Reaction to Accidentally Injected Rubber Plugs. T. B. Magath and J. T. McClellan.—p. 829.

Rapid Titrimetric Method for Determination of Blood-Sugar. F. Rappaport and E. Eichhorn.—p. 834.

Sternal Route in Measuring Blood Volume. C. Reich and L. Howard.—p. 837.

Effect of Folic Acid Antagonist, 4 Amino-Pteroylaspartic Acid, in Treatment of Polycythemia Rubra Vera. E. C. Bell and P. L. Davis.—p. 839.

*Persistent Truncus Arteriosus. Clinicopathologic Study. V. Moragues.—p. 842.

20:901-1000 (Oct.) 1950

The Van Den Bergh Reaction. N. W. Elton.—p. 901.

Clinical and Pathologic Effects of Space-Occupying Lesions of Bone Marrow. A. V. Pisciotta.—p. 915.

Multiple Myeloma: Lesions of Extra Osseous Hematopoietic System. J. Churg and A. J. Gordon.—p. 934.

Consideration of Phenomenon of "Sludged Blood" in Disease. R. H. Rigden.—p. 946.

Lesions Resembling Boeck's Sarcoid in Lymph Nodes Draining Area Containing Malignant Neoplasm. E. M. Nadel and L. V. Ackerman.—p. 952.

Comparative Study of Vaginal Smears and Cervical Cell Scrapings in Intra Epithelial Carcinomas. D. D. Kulcsar.—p. 958.

Electrophoretic Studies in Gaucher's Disease. A. R. Goldfarb, D. H. Atlas and P. Gaberman.—p. 963.

Persistent Truncus Arteriosus.—The truncus arteriosus, according to Moragues, is the most cephalic portion of the cardiac tube in the early embryologic development. The partitioning of the truncus into aorta and pulmonary trunk begins in the aortic sac. This division progresses through the truncus toward the ventricle. If this process is not completed, a partial type of truncus arteriosus communis persistens results. If there is no separation of the truncus, a complete type of truncus arteriosus communis persistens results, in which the pulmonary arteries arise directly and independently from the common arterial truncus, above the heart. The criteria for anatomic identification are that: (1) only one large arterial trunk be present at the base of the heart, (2) the arterial trunk must combine the features and functions of both the aorta and the pulmonary artery, on the one hand giving off the coronary and systemic arteries and on the other supplying blood to the lungs, (3) there is always an interventricular septal defect and (4) the trunk is usually in the position of the rider aorta. The author presents four cases of persistent truncus arteriosus with postmortem studies. Three instances were of the partial and one was of the complete type. Of the 37 instances of this malformation so far reported, 30 were in patients under one year of age. Patients with persistent truncus arteriosus usually have a systolic murmur and a thrill at the base of the heart, because of the ventricular septal defect. The pulse pressure may be high, and the clinical picture may simulate that of a persistent ductus arteriosus. The degree of cyanosis varies from case to case and frequently shows intermittent accentuation; it is greater when the subject is lying down. In roentgenologic examination, the anteroposterior plate usually shows enlargement of the cardiac outline, especially to the left. The pulmonary conus is absent, and the aortic knob may be prominent. Taussig claims that in persistent truncus arteriosus the cardiac outline in the left anterior oblique view is diagnostic, showing a sharp projection forward (shelf) of the upper border of the right ventricle. The author does not agree, since in two of his cases he did not find such a diagnostic silhouette. Besides, almost identical outlines have been seen in cases of tetralogy of Fallot.

American Journal of Hygiene, Baltimore

52:133-250 (Sept.) 1950. Partial Index

Comparative Oviposition Experiments with Caged Mosquitoes. J. de Zulueta.—p. 133.

Studies on Destruction of Bacterial Virus. S. L. Chang, F. Condie and M. Graham.—p. 184.

Observations on Serological Epidemiology, Antibodies to the Lansing Strain of Poliomyelitis Virus in Sera from Alaskan Eskimos. J. R. Paul and J. R. Riordan.—p. 202.

Passive Transfer of Immunity to Lansing Poliomyelitis Virus from Actively Immunized Mothers to Young Mice. R. Thompson and F. P. Meyers.—p. 213.

*A Disease Epidemic in Iceland Simulating Poliomyelitis. B. Sigurdsson, J. Sigurjonsson, J. H. Sigurdsson, J. Thorkelsson and K. R. Gudmundsson.—p. 222.

Studies on Type Specific Immunization with Somatic Antigens of Corynebacterium Diphtheriae. M. Frobisher, Jr. and E. I. Parsons.—p. 239.

Epidemic in Iceland Simulating Poliomyelitis.—Sigurdsson and his associates describe an epidemic that occurred in an Iceland community with about 7,000 inhabitants during the late fall and winter of 1948-1949. The first cases were given diagnoses of poliomyelitis. The epidemic reached its peak in the last week of November and lasted until the middle of February. The number of cases reported was 465, a case incidence of 6.7 per cent. Paresis was observed in 129 cases, but there were no deaths. The disease appeared to spread through personal contact, and cases were particularly frequent in the schools. The case incidence was highest by far in the age group of 15 to 19 years, was also high among adults, but was relatively low among children under 5 years of age. The disease was characterized by a low fever, which sometimes persisted for weeks, accompanied with a dull pain in one or more limbs, with or without such pain in the neck and back. Muscle tenderness, often confined to small areas, was also a prominent symptom. Paresis of one or more muscle groups, irregularly distributed, developed in about 28 per cent of the cases. The aches often persisted long after the disappearance of all objective symptoms. Sensibility disturbances were not infrequent, and complaints of nervous instability and irritability persisted for months in some cases. Symptoms of arthritis followed the infection in several instances. Four samples of feces were tested for poliomyelitis virus with negative results. Similarly, tests for the Coxsackie type of virus on baby mice were negative. Complement fixation tests of convalescent serums with antigens specific for several virus encephalitides also gave negative results. The fact that poliomyelitis virus or Coxsackie virus were not isolated in these cases does not exclude the possibility that one or both may have been present in the epidemic. It is possible that a strain of poliomyelitis virus with unusual pathogenic properties and of low virulence was responsible for this epidemic or that some unknown neurotropic virus was present.

American Journal of Medicine, New York

9:277-424 (Sept.) 1950

*Effect of Schedule of Administration on Therapeutic Efficacy of Penicillin. Importance of Aggregate Time Penicillin Remains at Effectively Bactericidal Levels. H. Eagle, R. Fleischman and A. D. Musselman.—p. 280.

*Treatment of Rickettsialpox with Aureomycin. H. M. Rose, Y. Kneeland Jr. and C. D. Gibson.—p. 300.

Further Experience in Treatment of Rocky Mountain Spotted Fever with Chloramphenicol. R. T. Parker, R. E. Bauer, L. M. Lister, T. E. Woodward and H. E. Hall.—p. 308.

*Plasmacytosis and Hyperglobulinemia as Manifestations of Hypersensitivity. Postmortem Study of Two Cases with Hypersensitivity Probably due to Sulfadiazine. T. Robertson.—p. 315.

Relation of Bone Marrow Plasmacytosis to the Changes in Serum Gamma Globulin in Rheumatic Fever. R. A. Good and B. Campbell. —p. 330.

Dosage Schedules of Penicillin.—Eagle and co-workers studied the factors governing the efficacy of penicillin given in different dosage schedules in a variety of experimental infections. Mice and rabbits were inoculated with Diplococcus pneumoniae types 1 and 3, group A and group B betahemolytic streptococci and Treponema pallidum. Results showed that the curative dosage of aqueous penicillin varies widely, as much *as a thousandfold, according to the schedule of its administration.* In a given infection, these widely disparate curative doses provide effective concentrations of penicillin for essentially the same aggregate period of time, modified only by the varying effects of the penicillin-free interval between injections. The common denominator of "penicillin time" is suggested as the primary determinant of its therapeutic activity. The rate at which bacteria die under the impact of penicillin in vivo is independent of its absolute concentration, provided only that the latter is in excess of the level which in vitro kills the particular organism at the maximal rate. Large doses of penicillin are more effective than smaller doses, primarily because of the longer time during which they provide that effective concentration. A penicillin-free interval between injections modifies the therapeutic activity of the drug in two respects. For a variable period of time after the penicillin has fallen to ineffective levels, the body may continue to dispose of bacteria damaged but not yet killed by the drug in some cases. The body thus contributes to the therapeutic action of the drug by reducing the time for which penicillin itself need act on the bacteria. Eventually, the organisms may recover from the toxic effects of the preceding injection and resume multiplication. An unduly long penicillin-free interval between injections therefore necessitates larger doses of penicillin and the provision of effective concentration for a longer aggregate time.

Aureomycin in Rickettsialpox.—Rose and co-workers treated five young adult patients and three children with proved rickettsialpox with aureomycin hydrochloride administered by mouth in doses of from 2 to 4 Gm. daily, with a total dose of from 2.25 to 16 Gm. No toxic side reactions were observed, other than occasional nausea, vomiting and diarrhea, which in one patient was sufficiently severe to require discontinuance of treatment. The temperature was restored to normal within 18 to 24 hours, with complete disappearance of headache and malaise in all patients. The acute febrile stage of rickettsialpox not treated with aureomycin usually lasts about one week, the fever and associated symptoms abating gradually over the final two or three days of the illness. Results of aureomycin therapy suggest that treatment with this antibiotic should be considered whenever the clinical diagnosis of rickettsialpox seems reasonably certain. No specific antibody response was detected by the complement fixation test in three of the eight patients during convalescence. It seems probable that aureomycin suppressed rickettsial multiplication so promptly and completely that the resulting antigenic stimulus was insufficient for detectable antibody production. Since the specific diagnosis of rickettsial disease is usually made in retrospect by serologic test with acute and convalescent phase serums, the use of aureomycin, which interferes with the immune response, may seriously affect the diagnosis by serologic methods and may even render it impossible.

Plasmacytosis and Hyperglobulinemia Due to Sulfadiazine.—Robertson reports two patients, one young woman with acute peritonitis following self-induced abortion and a boy aged 14 with bronchopneumonia, who were treated with sulfadiazine. Clinical and postmortem observations suggested probable hypersensitivity to sulfadiazine in both cases. The boy survived for more than five months after the onset of the symptoms, while the female patient survived for only 19 days. The lesions in both cases consisted of a widespread plasmacytosis, hepatitis and interstitial nephritis. The patient who survived longer had pronounced hyperglobulinemia during life, while serum globulins were increasing in the other patient at the time of death. The boy died of liver failure and the woman of kidney failure. In neither case was the diagnosis of hypersensitivity fully appreciated during life. The blood sulfonamide level of the woman on the day before death was 17.4 mg. per 100 cc., so that ample antigen was present even at this time to stimulate plasmacytosis and hyperglobulinemia as well as nephritis and hepatitis. The chief reason for consideration of plasmacytosis and hyperglobulinemia as a reaction to sulfadiazine in the boy rested on the large experimental evidence in animals that plasmacytosis and hyperglobulinemia are responses to a great variety of antigenic stimuli. Differentiation between plasma cell myeloma and massive plasmacytosis is difficult. A diagnosis of plasmacytosis should be considered when essentially normal cells of the plasmacytic series are observed in moderate numbers along with normal marrow elements in a patient exhibiting anemia and hyperglobulinemia. The author's two cases are the first in which sulfonamide compounds have been indicted as probably responsible for extensive plasmacytosis and hyperglobulinemia in addition to the lesions commonly seen in sulfonamide hypersensitivity.

American Journal of Public Health, New York

40:917-1066 (Aug.) 1950. Partial Index

Ducks and Shellfish Sanitation. M. H. Bidwell and C. B. Kelly Jr. —p. 923.

Observations on Transmission of Salmonellosis in Man. E. Neter. —p. 929.

*Hazards in Use of Radioactive Static Eliminators and Their Control. J. E. Silson.—p. 943.

Relationship Between Nutrition and Pregnancy as Observed in Recent Surveys in Newfoundland. G. A. Goldsmith.—p. 953.

Problems and Methods in Nutrition Services for Pregnant Women. B. A. Burke and S. B. Kirkwood.—p. 960.

Integration of Public Health and Hospital Services in Denver. J. P. Dixon.—p. 973.

Hazards in Radioactive Static Eliminators.—Silson points out that static electricity is generated in almost any operation where paper, plastic, rubber or some other dielectric is passed at high speed between rollers or other friction-creating surface. Static electricity not only interferes with production but may cause fire or explosions. Many physical means have been used in attempts to deal with the static charge. Probably the commonest is passage of the charged material over grounded metal tinsel or combs. Humidifiers, gas flames and high voltage electrodes have all been used, but each has disadvantages or hazards. The most recent of these methods is the use of radioactive alpha-emitting bars to ionize the air. Two types of bars have been advocated: one containing polonium, which is essentilly an alpha emitter, and the other containing radium which, in addition, gives off beta and gamma rays. The former, however, has had a somewhat limited field of usefulness. Radium bars consist of a mounting holding a thin strip of gold foil, which contains a measured quantity of radium. This is covered with several thin layers of plating. Two types of foil have been evaluated in operation, containing respectively 25 and 50 micrograms of radium per linear inch. The use of radium-containing bars requires control of the radiation hazards. Protection against gamma radiation involves the maintenance of a distance between the worker and the source, since shielding is generally impractical because of the great thickness of lead required. Beta radiation, on the other hand, requires a much greater distance but is much more rapidly controlled by shielding. Much of this shielding can be accomplished by the use of a properly designed housing for the source, without appreciable interference with the alpha radiation necessary for the ionization of the atmosphere. No additional precautions are necessary for protection against the alpha rays, except the use of gloves for momentary handling of the bars, as in cleaning them. There is no hazard from radon gas in a normally ventilated workroom and no appreciable adsorption of this gas in the dust and lint which collects on the bars. Care must be used in locating bars to provide proper distance and shielding for all phases of operation. Film badge monitoring and medical supervision of the workers are advisable as a final check on the adequacy of the control measures.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

34:401-500 (Sept.) 1950

Is Venereal Disease No Longer a Problem? E. G. Clark.—p. 401.
Studies on Relationship of Treponemal Antibody to Probable Biologic False Positive Serologic Tests for Syphilis. C. F. Mohr, J. E. Moore, R. A. Nelson and J. H. Hill.—p. 405.
Evaluation of Treatment of Early Syphilis with Arsphenamine and Heavy Metal. R. C. Thompson and D. C. Smith.—p. 410.
Treatment of Primary and Secondary Syphilis with Four New Schedules: Preliminary Report on 500 Cases. L. J. Alexander, A. G. Schoch and W. B. Mantooth.—p. 420.
Synergistic Action of Penicillin in Combination with Arsenic and Bismuth in Early Syphilis: Report of 198 Patients Treated with 2.4 Million Units of Sodium Penicillin Combined with Arsenic and Bismuth. F. Plotke, J. Rodriquez and G. X. Schwemlein.—p. 425.
*Treatment of Early Syphilis with Penicillin and Bismuth Subsalicylate: Daily Injection of 500,000 Units of Penicillin G in Sodium Chloride Solution for 20 Consecutive Days and 10 to 20 Doses of Bismuth Subsalicylate at Rate of Two a Week: Second Report. V. Pardo-Castello and O. A. Pardo.—p. 431.
*Treatment of Syphilis with Aureomycin: Preliminary Report. S. Olansky, R. B. Hogan, S. R. Taggart and others.—p. 436.
*Oral Treatment of Neurosyphilis with Aureomycin. R. R. Kierland and P. A. O'Leary.—p. 443.
Phenomena of Disease in Rabbits Fed Cholesterol and Inoculated with Treponema Pallidum: II. Infectivity of Blood. C. N. Frazier, A. Bensel and C. S. Keuper.—p. 453.
Value of Synthetic (Dimyristoyl) L-a-Lecithin as Antigen Component with Cardiolipin in Serodiagnosis of Syphilis: Preliminary Report. B. S. Kline.—p. 460.
Are Ninth-Day Erythema and Hemorrhagic Encephalitis in Patients Treated with Arsenicals Parts of One and the Same Syndrome? F. E. Reymann.—p. 468.
Pilot Study of the Navy's Educational Program on Venereal Disease. C. L. Vaughn and A. D. Freiberg.—p. 476.
Use of Benadryl in Prevention of Reactions to BAL. H. L. Holley.—p. 490.

Penicillin and Bismuth Subsalicylate for Syphilis.—In the treatment of primary and secondary syphilis, Pardo-Castello and Pardo used a schedule of 20 doses of crystalline penicillin G. The drug was administered intramuscularly to 91 patients at the rate of 500,000 units daily dissolved in 3 cc. of isotonic sodium chloride solution. Twice a week, 10 to 20 doses of 0.13 Gm. of bismuth subsalicylate were given intramuscularly. All patients were clinically cured at the end of 60 days to two years. Of the 91 patients, 79 are still seronegatives; 11 are still seropositive with falling titer, and one patient returned with a serologic relapse and was retreated. The low rate of failure in this group suggests that penicillin in aqueous solution equals or surpasses penicillin in effectiveness in the several absorptive-delaying menstruums now in use. The authors believe that constant hemoconcentrations of penicillin are not necessary for the effective treatment of syphilis and that absorption-delaying menstruums are not essential. Larger amounts of penicillin administered during a longer time will prove more effective than the smaller quantities in a short time, as now advised in most schedules. The addition of bismuth subsalicylate to any schedule of treatment increases its therapeutic value.

Aureomycin Treatment of Syphilis.—According to Olansky and his collaborators, a study of the use of aureomycin in the treatment of syphilis was instituted in January 1949, at the Rapid Treatment Center, Callinger Municipal Hospital, Washington, D. C. This preliminary report is concerned with 108 patients. The four dosage schedules that were tried consisted first of 30 mg., 60 mg., 120 mg. or 240 mg. per kilogram of body weight per day. Since the disappearance time of organisms from the lesions was almost as short with the lower dosages as with the higher (23 to 30 hours) and since toxic reactions might be expected to be less severe and less frequent with lower doses, schedules of 30 and 60 mg. per kilogram daily were established for the remainder of the patients. The daily dose was divided into six portions and was administered at four-hour intervals. Aureomycin was found therapeutically active in syphilis. Better results were obtained with 60 mg. per kilogram per day for eight days than with the same or smaller doses for shorter periods of time. The two most important observations were that treponemas disappear from surface lesions at a slower rate and that the Jarisch-Herxheimer reaction is milder and less frequent after aureomycin than after penicillin administration. Aureomycin may therefore be most valuable in patients with late syphilis in whom a severe Jarisch-Herxheimer reaction should be avoided. It may also be valuable in the treatment of syphilis of the central nervous system or in cardiovascular syphilis. Allergic reactions to aureomycin were rare, therefore it should prove valuable in patients allergic to penicillin. Avitaminosis may occur either during or after the use of aureomycin. This fact and the high incidence of gastrointestinal symptoms (nausea, vomiting and diarrhea) that occur with aureomycin in the dosage necessary in syphilis constitute the disadvantages.

Aureomycin in Neurosyphilis.—Kierland and O'Leary treated 15 patients with neurosyphilis with orally administered aureomycin. Two patients did not tolerate the antibiotic because of severe gastrointestinal reactions, and one was transferred to a state institution after receiving only 8 Gm. of the drug. The remaining 12 patients were terated with aureomycin in doses of from 50 to 90 Gm. Three of the patients had asymptomatic neurosyphilis, two had meningovascular syphilis, one had tabes dorsalis, one had taboparesis and five had paresis. Aureomycin produces satisfactory clinical results. The majority of patients gained weight; there was an increased sense of well-being, and many minor subjective complaints disappeared. All but one patient with symptomatic neurosyphilis were clinically improved. The disease in the three patients with asymptomatic neurosyphilis showed no signs of progression. The spinal fluid of patients treated with aureomycin showed essentially the same response as that of patients treated with penicillin. The cerebrospinal fluid in 11 of the 12 patients showed steady and rapid diminution in the cell count and values for protein. The patient observed for the longest period achieved a completely normal cerebrospinal fluid. The early results suggest that aureomycin will produce the accumulative and long-standing beneficial results achieved by penicillin alone or penicillin plus fever therapy. The dosage of aureomycin used has varied considerably, but approximately 60 Gm., given in doses of 2 to 4 Gm. daily, seems sufficient for a single or first course of therapy. Reactions involving the gastrointestinal system appeared in approximately 50 per cent of the cases. A reduction of the daily doses often permitted continuation of medication. Aureomycin is indicated for patients with neurosyphilis who have a resistance or hypersensitivity to penicillin.

Am. Practitioner & Digest of Treatment, Philadelphia

1:897-984 (Sept.) 1950

*Oral and Pharyngeal Complications of Chloramphenicol (Chloromycetin) Therapy. B. Williams.—p. 897.
Nose and Throat Practice and Viral Infection of Upper Respiratory Tract. A. P. Seltzer.—p. 901.
Venous Pressure Determinations in Clinical Practice. Effect of Tetraethyl Ammonium in Congestive Failure. C. R. Shuman.—p. 904.
Role of Esophagus in Local and Systemic Disease. E. Boros.—p. 912.
Cancer Diagnosis in Small Community Hospital: II. Aspiration Biopsy. B. M. Chapman and I. Pilot.—p. 916.
Clinical Significance of Chronic Gastritis. J. W. Findley.—p. 920.
Treatment of Various Infections with Single Doses of 300,000 Units of Procaine Penicillin in Oil Plus Aluminum Monostearate. H. L. Hirsh and W. Kurland.—p. 923.
Psychotherapy in General Practice: Acute Anxiety States and Their Treatment. W. C. Hulse and L. Lowinger.—p. 926.
Psychologic Approach to the Problem of Obesity. A. D. Jonas.—p. 933.
Psychotherapy in Psychosomatic Medicine. L. J. Saul and H. K. Fisher.—p. 938.
Chronic Primary Friedlander Pneumonia: Report of Case with Prompt Clinical and Roentgen Cure Following Streptomycin Therapy. J. L. Switzer, J. Cohen and L. A. Baker.—p. 941.
Mucoserous Dyssecretosis (Sjögren's Syndrome). Non-Ocular Features. S. C. Smith and D. C. Smith.—p. 944.
Review of Headache Problem. A. F. Friedman.—p. 948.
Renal Complications of Cardiac Disease. Three Case Histories. P. Gaberman, D. H. Atlas, L. Ehrlich, J. Isaacs and E. M. Kammerling.—p. 953.
Inverted T Wave in Precordial Leads. R. L. Griffith.—p. 956.
Combined Anti-Amebic and Antibacterial Treatment of Intestinal Amebiasis. H. Seneca and E. Henderson.—p. 960.
Two New Drugs in Treatment of Amebiasis. W. H. Shlaes, F. Steigmann, D. Feldman and C. Goldenberg.—p. 966.

Oral and Pharyngeal Complications of Chloramphenicol Therapy.—Williams directs attention to the oral and pharyngeal complications that arise during the treatment of infections with chloramphenicol. Of 200 patients receiving chloramphenicol, glossitis and black tongue, stomatitis, pharyngitis and infection of the mouth and throat developed in 12 (6 per cent) while they were being treated with the drug The symptoms in six of these patients were so severe that therapy had to be discontinued The patients in whom the oral and pharyngeal complications developed either were of the older age group or had chronic disease Five of the 12 had long-standing gastrointestinal disease The oral or pharyngeal reactions were most severe in those patients who received other antibiotics in addition to chloramphenicol Invasion by a yeastlike fungus, Monilia (Candida) albicans, occurred in nine patients after the bacterial flora had been suppressed by chloramphenicol Administration of supplementary vitamins failed to prevent the development of oral and pharyngeal reactions in three patients with ulcerative colitis Supplementary vitamins were not given to the remainder of the group with oral complications

Annals of Internal Medicine, Lancaster, Pa.

33:533-700 (Sept) 1950

Present Day Undesirable Trends in Training of Physicians and Teachers of Internal Medicine H A Christian—p 533
Bactericidal Action of Penicillin in Vivo Participation of Host, and Slow Recovery of Surviving Organisms H Eagle, R Fleischman and A D Musselman—p 544
Heart Disease Its Medical Aspects S A Levine—p 572
Antibiotics Yesterday, Today, Tomorrow C S Keefer—p 582
Treatment of Intractable Peptic Ulcer W L Palmer, J B Kirsner and I L Levin—p 590
Brain Abscess and Congenital Heart Disease R F Maronde—p 602
Some Problems of Potassium Metabolism J M Weller and I M Taylor—p 607
*Effects of Dibenamine on Severe Hypertension R E Wunsch, R D Waenke and G B Myers—p 613
Long Term Study of Natural History of Essential Hypertension K A Evelyn—p 629
*Clinically Significant Differences Between Precordial Electrocardiograms Derived from V and CF Leads A D Kistin and W D Brill—p 636
Relief of Peptic Ulcer Pain by Tetraethyl Ammonium Chloride P A Bintner and T J Rankin—p 649
Auricular Flutter with Complete Heart Block O Brandman, W J Messinger, W Redisch and K Zeltmacher p 659
Errors in Diagnosis and Management of Cancer D Laszlo, M L Colmer G B Silver and S Standard p 670
Industrial Aspects of Cardiac Infarction G F Strong—p 690

Effects of Dibenamine® on Hypertension—Wunsch and his associates studied the effect of N,N dibenzyl-β chlorethylamine (dibenamine®) on 31 patients with severe hypertension The drug was administered by slow intravenous drip (45 to 60 min), in doses of 2 to 10 mg per kilogram of body weight to 14 patients, including 10 in the malignant phase of hypertension Enteric coated tablets of dibenamine® were given orally to 17 patients in doses of 0 25 to 0 5 gm, one to three times daily Toxic reactions were experienced by all alert patients Results of the study showed that given by the intravenous route, this drug is of value in the symptomatic relief of hypertensive encephalopathy, that it is merely an accessory measure to combat an acute episode of hypertensive encephalopathy in the hope that sufficient improvement may be obtained to permit sympathectomy and that because of its toxicity it should be reserved for patients failing to improve on standard medical measures Dibenamine® given orally was not tolerated in therapeutically effective doses All doses should be given by slow intravenous infusion over a period of at least one hour, to reduce the danger of severe toxicity The initial dose should be limited to 2 to 3 mg per kilogram and, if tolerated, subsequent doses should be increased to the therapeutic range of 5 to 10 mg per kilogram Intravenously administered dibenamine is contraindicated in the treatment of the ambulatory hypertensive patient, not only because of its toxicity but also because of the pronounced and prolonged orthostatic hypotension it causes

Precordial Electrocardiograms Derived from V and CF Leads—Kistin and Brill report seven cases in which there were clinically significant differences between precordial electrocardiograms recorded in succession, once with the Wilson distant electrode (V leads) and once with the distant electrode on the left leg (CF leads), the precordial electrode remaining in place. Abnormalities occurred in the CF leads, the T waves were inverted in all cases, and in two cases, there were abnormal Q waves, whereas the corresponding V leads were normal There was no definite evidence of heart disease in any of the cases, although there were questionable symptoms or signs in some It was concluded that the CF leads gave false indications of cardiac disease, while the normal V leads were more consistent with the cardiac status The discrepancies were due to high potentials at the left leg compared to the potentials at the precordium and at the Wilson electrode Such potentials may occur in the absence of heart disease and may be related to alterations in the position of the heart and its relation to adjacent structures

Annals of Surgery, Philadelphia

132:321 576 (Sept) 1950

Training of Surgeons for Small Communities T G Orr—p 321
Congestive Atelectasis—Complication of Intravenous Infusion of Fluids M F Jenkins R F Jones, B Wilson and C A Moyer—p 327
Effect of Analgesics and Antispasmodics on Common Duct Pressures A R Curreri and J W Gale—p 348
*Further Studies on Factors Influencing Liver Injury and Liver Repair I S Ravdin and H M Vars—p 362
*Postoperative Salt Retention and Its Relation to Increased Adrenal Cortical Function H T Johnson J W Conn, V Iob and F A Coller—p 374
Studies of Combined Vascular and Neurologic Injuries I Effect of Somatic and Sympathetic Denervation upon Results of Arterial Ligation in Rat H B Shumacker Jr and G E Stokes—p 386
Combination of Sympathectomy and Thiocyanates in Treatment of Experimental and Essential, or High Diastolic Hypertension L Davis C A Tanturi and J A Tarkington—p 394
Restoration of Facial Function by Nerve Anastomosis K G McKenzie and E Alexander Jr—p 411
Venous Shunts in Bilateral Parasagittal Meningioma. J Browder and H Kaplan—p 416
Study of Viability of Autogenous Frozen Bone Grafts by Means of Radioactive Phosphorus C L Kiehn, H Friedell J Benson and others—p 427
Results of Treatment of Subacromial Bursitis in 340 Cases G A Caldwell and B M Unkaut—p 432
Ac Globulin Levels in Thrombo Embolism J H Olwin and J L Fahey—p 443
Agnogenic Venous Mesenteric Thrombosis F B Berry and J A Bougas—p 450
Sudden and Complete Occlusion of Portal Vein in Macaca Mulatta Monkey C G Child III, R F Milnes G R Holswade and A L Gore—p 475
Valvulotomy for Relief of Congenital Valvular Pulmonic Stenosis with Intact Ventricular Septum Report of 19 Operations by the Brock Method A Blalock and R F Kieffer Jr—p 496
Resection of Auricular Appendages J M Beal, W P Longmire Jr and W H Leake—p 517
General Hypothermia for Experimental Intracardiac Surgery Use of Electrophrenic Respirations Artificial Pacemaker for Cardiac Standstill, and Radio Frequency Rewarming in General Hypothermia W G Bigelow, J C Callaghan and J A Hopps—p 531
Should Total Gastrectomy be Employed in Early Carcinoma of the Stomach? Experience with 139 Total Gastrectomies F H Lahey and S F Marshall—p 540
Treatment of Inguinal Hernia in Infants and Children W J Potts, W J Riker and J E Lewis—p 566

Liver Injury and Repair.—Ravdin and Vars believe that the reduction in functional capacity of the liver, which at times occurs following anesthesia and operation, is due in large part to anoxia Failure of an adequate oxygen supply is the chief cause of this anoxia during anesthesia During an operation anoxia may result from any condition that impedes blood flow to the liver, even when the circulating blood is well oxygenated, or from a reduced blood flow, as in shock In a patient with suspected acute or chronic liver injury, the prevention of hepatic anoxia during and after operation is of major importance to recovery A diet adequate in total calories and in composition will partially protect the liver from a wide variety of noxious agents and will facilitate repair of the liver damaged by these agents It will even facilitate repair in the presence of recurrent cholangiohepatitis The importance of an adequate intake of protein and of an optimal number of calories in the preoperative period, therefore, takes on a new significance, for repair can be begun and functional capacity improved before the patient is subjected to the assault of anesthesia and operation

Postoperative Salt Retention and Adrenal Cortical Function.—Johnson and his collaborators direct attention to the temporary disturbances in the electrolyte and protein metabolism that occur in the period immediately following a major surgical operation. They used the electrolyte concentrations of serially obtained samples of sweat as an index of changes in the activity of salt-active adrenal steroids Sweat tests and eosinophil counts were made of 12 men and two women before and after such operations as gastric resection, cholecystectomy, herniorrhaphy, splenectomy, closure of colostomy and varicose vein ligation. All subjects were in good nutritional state, and most received at least 5 Gm. of sodium chloride per day orally or parenterally during the postoperative period. The results of the sweat analyses are shown in diagrams. Activities of three main types of adrenocorticosteroids, namely, electroyle-regulating 11-desoxycorticosterone-like steroids, 11-oxysteroids and steroids having activities and end products characteristic of sex hormones are discussed. A major surgical procedure constitutes an "alarming stimulus" resulting in increased production of pituitary adrenocorticotropic hormone with a resultant increase of adrenal cortical activity during the first five to nine days after operation. Studies of the changes in the composition of thermal sweat before operation and periodically after operation indicate that in the immediate postoperative period there is increased activity of those adrenal steroids that cause retention of sodium, chloride and water. It is concluded that increased production by the adrenals of desoxycorticosterone-like steroids accounts, at least in part, for salt retention and the accompanying potassium diuresis after operation.

Arch. Indust. Hygiene and Occupat. Med., Chicago

2:245-364 (Sept.) 1950

SYMPOSIUM ON PREPAYMENT HEALTH PLANS FOR INDUSTRIAL WORKERS

Medical Care for Industrial Employees. T. A. McGoldrick.—p. 245.
Blue Shield Prepayment Health Plans. J. F. McCormack.—p. 247.
Blue Cross Plans. P. R. Hawley.—p. 251.
Union Plans. L. Price.—p. 256.
Medical, Health and Hospital Program of U. M. W. A. Welfare and Retirement Fund. W. F. Draper.—p. 261.
New Joint Contributory Group Insurance Program for Weirton Steel Employees. H. B. Crow.—p. 264.
Medical Department of American Cast Iron Pipe Company. D. O. Wright.—p. 267.
Essential Principles of Private Insurance Prepayment Health Plans for Industrial Workers. E. A. Green.—p. 270.
Private Insurance Company Viewpoint Re Essential Principles of Current Medical Care Plans for Industrial Workers. E. L. Mitchell.—p. 275.

Some Requisites to Making LD_{50}'s from Different Laboratories Comparable. B. N. Craver, W. E. Barrett and A. E. Earl.—p. 280.
Anthracosilicosis in Bituminous Coal Miners: Clinical and Pathological Manifestations. H. A. Slesinger.—p. 284.
Pharmacologic Tools in Study of Mechanism of Uranium Poisoning. H. C. Hodge.—p. 300.
Preventive Aspects of Occupational Dermatoses. C. G. Lane and B. C. Gray.—p. 312.
Environmental Cancer Hazards Caused by Industrial Air Pollution: Introductory Comment to Discussion. W. C. Hueper.—p. 325.
Respiratory Tract Allergic Effects from Chemical Air Pollution. F. W. Wittich.—p. 329.
Acute and Chronic Toxicity of Some Halogenated Derivatives of Methane and Ethane. D. Lester and L. A. Greenberg.—p. 335.
Toxicity of Tetrachlorodifluoroethanes. L. A. Greenberg and D. Lester.—p. 345.
Toxicity of Sulfur Hexafluoride. D. Lester and L. A. Greenberg.—p. 348.
Toxicity of Sulfur Pentafluoride. L. A. Greenberg and D. Lester.—p. 350.

Arizona Medicine, Phoenix

7:1-80 (Sept.) 1950

Modern Treatment of Myocardial Infarction. S. R. Elek.—p. 25.
Prenatal Influences. R. V. Platou.—p. 32.
Diagnosis and Treatment of Pulmonary Mycoses. D. T. Smith.—p. 36.
Hypometabolism, Hypothyroidism, and Use of Thyroid Hormone. A. C. Van Ravenswaay.—p. 39.
Diagnosis and Treatment of Cancer of Cervix. L. Lindberg.—p. 41.

Bulletin of Johns Hopkins Hospital, Baltimore

87:255-348 (Oct.) 1950

Studies of Respiratory Air Flow: II. Observations on Patients with Pulmonary Disease. D. F. Proctor, J. B. Hardy and R. McLean.—p. 255.
Unique Case of Obstruction of Inferior Vena Cava. I. L. Bennett Jr.—p. 290.
Clinical Classification of Vestibular Disorders with Differentiation of Three Syndromes and Discussion of Common Form of Vertigo Induced by Sudden Movement of Head. F. R. Ford.—p. 299.
Differentiation Between Extrahepatic and Intrahepatic Obstruction of Portal Circulation: Clinical Study of "Banti Syndrome." O. D. Ratnoff, C. L. Conley and M. Berthrong.—p. 305.
Effect of Certain Cinchoninic Acid Derivatives on Renal Tubular Secretion of Phenol Red. E. H. Dearborn.—p. 328.

Circulation, New York

2:321-480 (Sept.) 1950

Electrical Conductivity of Living Tissues as it Pertains to Electrocardiography: I. Review of Problem of Homogeneity vs. Nonhomogeneity, Outline of Technical Aspects of Tissue Resistivity Measurements, and Critical and Experimental Analysis of Certain Pertinent Experiments. J. M. Benjamin Jr., H. Schwan, C. F. Kay and J. H. Hafkenschiel.—p. 321.
Localized Interlobar Effusion in Congestive Heart Failure: Vanishing Tumor of Lung. W. I. Gefter, K. R. Boucot and E. W. Marshall.—p. 336.
*Effect of Khellin on Coronary Artery Insufficiency as Evaluated by Electrocardiographic Tests. M. M. Best and W. S. Coe.—p. 344.
*Some Characteristics of Certain Reflexes Which Modify Circulation in Man. L. H. Peterson.—p. 351.
*Isolation of Hypertensin from Circulating Blood of Dogs by Dialysis in Artificial Kidney. J. R. Kahn, L. T. Skeggs and N. P. Shumway.—p. 363.
Relationship Between Prothrombin Time and Bleeding in Clinical Use of Dicumarol After Operation. C. A. M. Hogben and E. V. Allen.—p. 359.
Effect of Dependent Position upon Blood Flow in Limbs. R. W. Wilkins, M. H. Halperin and J. Litter.—p. 373.
Cholesterol, Cholesterol Esters and Phospholipids in Health and in Coronary Artery Disease: II. Morphology and Serum Lipids in Man. M. M. Gertler, S. M. Garn and H. B. Sprague.—p. 380.
Coronary Dynamics in Spontaneous and Nephrogenic Hypertensive Dogs During Depressor Response to Acute Inflammation. J. Stamler, A. P. Fishman, L. N. Katz and S. Rodbard.—p. 392.
Effect of Exercise on Plasma Volume of Patients with Heart Failure. R. P. Gilbert and J. K. Lewis.—p. 402.
Antidiuretic Action of Urine of Patients in Cardiac Failure. B. A. Bercu, S. N. Rokaw and E. Massie.—p. 409.
Arterioles of Kidney and Pancreas in Cases of Cardiac Hypertrophy of Undetermined Causation. H. A. Ferris Jr.—p. 414.
Intrabronchial Electrocardiography: Preliminary Report. P. H. Langner Jr. and J. P. Atkins.—p. 419.
Paroxysmal Ventricular Tachycardia with Second Degree V-A Block and Reciprocal Rhythm. S. Grau and J. L. Gouaux.—p. 422.
Transfixion of Heart by Embedded Ice Pick Blade with Eight Months' Survival. H. J. Lowen, S. A. Fink and M. Helpern.—p. 426.
Coronary Embolism: Review of Literature and Report of Unique Case. V. Moragues, M. B. Bawell and E. L. Shrader.—p. 434.
Atypical Secondary or Symptomatic Thrombocytopenic Purpura Developing with Use of Quinidine Sulfate. D. C. Collins.—p. 438.
Primary Systemic Amyloidosis Mimicking Chronic Constrictive Pericardial Disease. W. T. Couter and R. E. Reichert Jr.—p. 441.

Effect of Visammin on Coronary Artery Insufficiency.—According to Best and Coe, visammin (khellin) is a crystalline substance isolated from the seeds of the plant Ammi visnaga, which grows abundantly in the eastern Mediterranean region and which has been used for centuries in the treatment of conditions characterized by spasm of smooth musculature. The authors report on nine patients with a history of angina pectoris on exertion, for coronary insufficiency as shown by electrocardiogram, but with no evidence of congestive heart failure, hyperthyroidism or anemia and no recent myocardial infarction. The effectiveness of visammin in the treatment of these patients was evaluated electrocardiographically by means of the exercise tolerance test, the anoxemia and the ergonovine test. Coronary insufficiency was shown in results of 14 electrocardiographic tests of nine patients. Results of 10 of these tests reverted to normal with visammin therapy. This beneficial effect was not noted with placebo therapy. Eight of the nine patients noticed an increase in exercise tolerance and a decrease in number and severity of anginal attacks. Nausea and vomiting of moderate severity occurred in three patients during the visammin therapy. Visammin appears to be of value in the treatment of angina pectoris.

Reflexes Modifying Circulation.—Peterson says that during the last several years records have been obtained of intra-arterial pressures in nearly 1,000 persons by direct intra-arterial catheterization and electrocardiography. The records were obtained during anesthesia, operation, clinical disease and physiological and pharmacologic experiments. The records demonstrate the occurrence in man of cardiovascular reflex responses that are not generally recognized and are not explainable by existing concepts of reflex effect. The stimulation or alteration of certain reflex areas produces an apparent primary weakening of ventricular contraction (in some cases concurrent with the induction of bradycardia and in others independent of changes in the pacemaker system of the heart) in addition to alterations in stroke volume, cardiac filling and arterial pressure. These changes follow modifications of the reflex systems that are said to mediate their activity on the heart through the vagus nerves. In addition, the effects are not consistent with the presently accepted response of the sympathetic nervous system. These reflexes modify the manifestation of Starling's law. Spinal anesthesia to a sensory level of the twelfth thoracic segment had abolished the classic response of the pulse rate following changes in stroke volume, cardiac filling and arterial pressure. From this evidence it was concluded either that there are certain fibers from the vagus nerves that enter the ventricles directly and produce an effect of weakened strength of contraction or that sympathetic inhibition occurs far more rapidly and quantitatively in man than has been previously supposed.

Isolation of Hypertensin from Blood of Dogs in Artificial Kidney.—With the aid of the artificial kidney, Kahn and his associates dialyzed out of the circulating blood of animals a vasopressure substance. This substance was recovered from normotensive and hypotensive dogs and from animals with malignant hypertension. The method for concentration of this substance in the dialysate is described. The substance conforms to all the tests for the identification of hypertensin. Intravenous injections of 0 25 to 0 50 cc of it produce an immediate steep rise in blood pressure, the maximum rise occurring in one minute or less and the return to normal in three minutes or less The pressor effect of intravenous injections of the dialysate was unaffected by previous injections of cocaine, atropine or piperoxan (benzodioxan 933 F) but was potentiated by a previous injection of tetraethylammonium chloride. The pressor material was found to be water and alcohol soluble and ether insoluble and slowly dialyzable. In the dialysates in which there was a sufficient amount of the pressor material, this substance was found to be destroyed by trypsin, hyptertensinase and by boiling at p_H 12 but not at p_H 1.

Connecticut State Medical Journal, Hartford

14:807-894 (Sept) 1950

General Practice in Litchfield County. C Barker.—p 818.
Subtotal Gastrectomy for Peptic Ulcer and Antral Gastritis B V. White and W. M Edmonstone —p. 822
Hypofunction of Adrenal Glands in Newborn Infants H. Lipton —p 826.
Appendectomy with Recovery in Hemophiliac Case Report. B. B. Landry and J. Shoukimas —p. 824.
Unilateral Infiltrative Cellular Ependymoblastoma: Case Report. J. A. Beauchemin.—p 830
Doctors, Patients and Litigants W. Maxwell —p. 834.

14:895-978 (Oct) 1950

American Medicine Looks Ahead E L Henderson —p 899
Rheumatic Heart Disease in Aged (Analysis of 101 Cases). N. M. Mann, J. Rosenthal and I. Feigin —p 902
Recent Advances in Cardiac Surgery C H Huvelle —p 907.
Indications for Bronchoscopy. M L Jennes —p 915
Development of Occupational Health Committees in County Associations. A. B. Landry.—p. 920.

Diseases of Chest, Chicago

18:185-276 (Sept) 1950

Early Detection of Bronchogenic Carcinoma R. R. Shaw.—p 185.
Sarcoidosis R W. Ob'ath and S M. Farber —p 198.
Treatment of Tuberculous Meningitis with Streptomycin. S. Cohen and R H Gans —p 215.
Artificial Pneumoperitoneum in Treatment of Pulmonary Emphysema: Preliminary Report. R. H. Furman and J. J Callaway.—p. 232.
Pulmonary Resection and Streptomycin in Treatment of Pulmonary Tuberculosis F. A. Hughes, S Phillips, N. H. Kraeft and others —p 244.
Middle Lobe Disease J. R. Bryant and J. S Harter —p. 250.

Georgia Medical Association Journal, Atlanta

39:359-398 (Sept.) 1950

Gastroscope as Diagnostic Aid in Gastric Disorders. J. S Atwater. —p 359.
Chronic Pancreatic Disease C. W. Hock —p 361
Adenocarcinoma of Colon and Rectum D F. Mullins Jr —p 364
Choice of Operation in Gastric and Duodenal Ulcer. C H. Richardson Jr —p 366.
Analysis of 15 Cases of Intussusception J. W. Turner and A. B. Turner.—p 369.
Diaphragmatic Hiatus Hernia. S. B. Carter.—p. 374.
Presentation of the President's Gold Key to Enoch Callaway. D. H. Poer.—p 377.
President's Address W. C Payne —p 379.

Illinois Medical Journal, Chicago

98:217-268 (Oct.) 1950

Prevention of Respiratory Infections in Children, Including Sulfonamide Prophylaxis J K Mack —p 224
Experiences with Neoplastic Diseases of Thyroid Gland E P. Coleman and D A Bennett —p 231
Practical Aspects in Diagnosis of Virus Infections by Current Laboratory Technics R A Morrissey —p 238.
Role of the Radiologist in Diagnosis of Bronchogenic Carcinoma. C Gianturco —p 243
Caustic Strictures of Esophagus P. H Holinger and K. C. Johnston —p 246
Clinical Implications of Growth J. B Richmond —p 251.

Journal of Clinical Investigation, Cincinnati

29:1113-1260 (Sept) 1950

Intravascular Catheterization Studies of Bronchial Asthma: I Histamine Levels in Arterial and Mixed Venous Blood of Asthmatic Patients Before and During Induced Attacks B Rose, I. Rusted and J A Fownes —p 1113.
Oxygen Tension of Tissues by Polarographic Method I. Introduction: Oxygen Tension and Blood Flow of Skin of Human Extremities H Montgomery and O Horwitz —p 1120
Urinary Excretion and Biologic Decay Periods of Radiomercury Labeling a Mercurial Diuretic in Normal and Diseased Man G Burch, T. Ray, S Threefoot and others —p 1131.
Correlative Observations on Cerebral Metabolism and Cardiac Output in *Myxedema P Scheinberg, E A Stead Jr, E S Brannon and J. V.* Warren —p 1139
Inhibition of Streptolysin S by Serum of Patients with Rheumatic Fever and Acute Streptococcal Pharyngitis G H Stollerman and A. W. Bernheimer—p 1147
Comparative Study of Antihyaluronidase, Antistreptolysin "O," Antistreptokinase, and Streptococcal Agglutination Titers in Patients with Rheumatic Fever, Acute Hemolytic Streptococcal Infections, Rheumatoid Arthritis and Non Rheumatoid Forms of Arthritis R W Quinn and S J. Liao —p 1156
Fate of Intravenously Administered Calcium, Effect on Urinary Calcium and Phosphorus, Fecal Calcium and Calcium Phosphorus Balance. C. H Baylor, H. E Van Alstine, E H. Keutmann and S. H. Bassett —p 1167.
Pulmonary Retention of Aerosols: Quantitative Method of Measurement Using Sodium Para Amino Hippurate W Franklin, C. Denton and F C Lowell.—p. 1177
Studies on Initiation of Blood Coagulation II Anticoagulant Inhibiting Activation of a Plasma Thromboplastic Factor C L Conley, O D. Ratnoff, C E Ellicott and R C Hartmann —p 1182
*Dietary Treatment of Hypertension, Clinical and Metabolic Studies of Patients on Rice Fruit Diet V. P. Dole, L. K. Dahl, G Cotzias and others —p 1189
Thiosulphate Clearance in Pregnancy. C. Lambiotte, J Blanchard and *S Graff —p 1207*
Electrophoretic Studies of Human Serum at p_H 4 5. J. W. Mehl and F Golden —p 1214.
Design of Two Dimensional Ballistocardiograph J R Braunstein, C. E. Oelker and R C. Gowdy —p 1219.
*Studies in Renal Circulation During Periods of Life Stress and Accompanying Emotional Reactions in Subjects With and Without Essential Hypertension Observations on Role of Neural Activity in Regulation of Renal Blood Flow J. B Pfeiffer Jr and H. G. Wolff —p 1227.
Multiple Myeloma. III. Effect of Urethane Therapy on Plasma Cell Growth, Abnormal Serum Protein Components and Bence Jones Proteinuria R W Rundles, M L Dillon and E S Dillon —p 1243.

Dietary Treatment of Hypertension.—Dole and his associates report on six patients with hypertension treated by the rice-fruit diet of Kempner. The patients remained in continuous residence in a metabolic ward while observations were made on the evolution of clinical and metabolic changes. Five patients showed improvement as evidenced by a significant reduction in mean blood pressure, decrease in heart size, improvement in fundi and return to normal of low or inverted electrocardiographic T waves Restriction of sodium, but not of chloride, appeared to be necessary to obtain the clinical effect. An investigation was made of the sufficiency of the diet for maintenance, as shown by the attainment of steady weight, balance with respect to nitrogen, sodium, potassium and chloride and normal serum electrolyte concentrations. The five patients with normal renal function appeared to reach the equilibrium on this diet or to approach it closely. The sixth, who had impaired kidneys, achieved the first two of the criteria but probably became slowly depleted of body sodium, despite apparent balance, since her serum concentrations were reduced. With the added burden of ammonium chloride administration, she developed severe dehydration and acidosis. Adaptation proceeded slowly in all. Three months were required for attainment of steady weight by the smallest person and a little more than five months were required by the largest. Since the clinical benefit of the diet did not appear to be associated with depletion but, on the contrary, with successful adaptation, it was suggested that the therapeutic effect is a consequence of the steady adaptive response to limitation of sodium intake. Whether the high incidence of clinical improvement was due to the selection of relatively young persons with uncomplicated hypertension or whether it was due to the detailed supervision of dietary intake or even whether the sheltered environment of a metabolic ward may have contributed to the favorable effect was not investigated. These considerations, although pertinent to the general problem of dietary treatment, are not directly relevant to the association between clinical and metabolic change.

Life Stress and Renal Circulation.—Pfeiffer and his associates studied renal hemodynamics and blood pressure variations in 35 patients. Elevation in both systolic and diastolic blood pressures was induced by discussion of important personal topics having a threatening significance in 13 patients with normal blood pressure and in 22 with hypertension. During the emotionally induced rises in blood pressure, there was a constant fall in effective renal blood flow and a rise in filtration fraction, indicating an increase in the resistance offered by the renal arterioles. The changes in renal blood flow, filtration fraction and vascular resistance were similar in direction in both the hypertensive and normotensive groups, but there was an indication that the decrease in the renal blood flow and filtration fraction was more significant in the hypertensive group. The increase in renal vascular resistance was unequivocally greater in the hypertensive group. Following lumbodorsal sympathectomy and splanchnicectomy, induced elevations in systemic arterial pressure were accompanied with a reversal of the above pattern, i. e., a fall in filtration fraction and a less intense renal vascular constriction. This is interpreted as a failure, in whole or part, of the efferent glomerular arteriole to participate, although the afferent arteriole is still responsive. The concept is advanced that the kidney, under usual conditions, has two more or less independent vascular mechanisms: (*a*) a sympathetic control of the efferent glomerule arteriole and (*b*) an intrinsic or intrarenal humoral control of the afferent glomerular arteriole, possibly involving the juxtaglomerular myoarterial apparatus.

Journal of Lab. and Clinical Medicine, St. Louis

36:167-334 (Aug.) 1950

Role of Immature Plasma Cells, Lymphoblasts and Lymphocytes in Formation of Antibodies, as Established in Tissue Culture Experiments. F. J. Keuning and L. B. van der Slikke.—p. 167.
Bacteriologic Studies of Newer Antibiotics: Effect of Combined Drugs on Microorganisms. S. Spicer.—p. 183.
Metabolism and Excretion of Alkaline Phosphatase: Relation to Liver Function and Determination of Maximal Secretory Rates of Liver. H. H. LeVeen, L. J. Talbot, M. Restuccia and J. R. Barberio.—p. 192.
Acute Disseminated Lupus Erythematosus: Report of Case Treated with Adrenocorticotropic Hormone (ACTH), with Clinical and Metabolic Observations and Autopsy Findings. R. L. Whipple Jr. and J. K. Davidson III.—p. 206.
Distribution of Thiopental in Central Nervous System. T. F. Hubbard and L. R. Goldbaum.—p. 218.
Diuretic Action of Coumarin-Mercurial Compound. S. Shapiro and M. Weiner.—p. 224.
P Factor and Its Variants in Caucasians, Negroes and Chinese. E. B. Miller, H. D. Tannor and Ching-Feng Hsu.—p. 230.
Coagulation Defect of Vitamin K Deficiency Compared with That Caused by Dicumarol. F. D. Mann, J. D. Mann and J. L. Bollman.—p. 234.
Megaloblastic Anemia of Pregnancy: Response to Pteroylglutamic Acid After Failure of Response to Liver Extract and Vitamin B_{12b}. V. Ginsberg, J. Watson and H. Lichtman.—p. 238.
Allergic Reactions from Ingestion or Intravenous Injection of Cane Sugar (Sucrose). T. G. Randolph and J. P. Rollins.—p. 242.
Protection Against Diabetes with Nicotinamide. A. Lazarow, J. Liambies and A. J. Tausch.—p. 249.
Plasma Levels of Nine Free Amino Acids in Old Men and Women. L. Hofstatter, P. G. Ackermann and W. B. Kountz.—p. 259.
Trypsin Inhibitor of Urine in Health and Disease. G. H. L. Dillard.—p. 266.
Artificial Kidney: III. Elimination of Vasodepressor Effects Due to Cellophane. L. T. Skeggs Jr., J. R. Leonards, C. Heisler and J. R. Kahn.—p. 272.
Benemid and Carinamide: Comparison of Effect of Para-Aminosalicylic Acid (PAS) Plasma Concentrations. W. P. Boger, F. W. Pitts and M. E. Gallagher.—p. 276.
Heterophile Agglutination Variability of Erythrocytes from Different Sheep. C. J. D. Zarafonetis and H. L. Oster.—p. 283.
Observations on Role of Pulmonary Congestion in Production of Edema of Lungs. R. Paine, H. R. Butcher, J. R. Smith and F. A. Howard.—p. 288.
Urinary Formaldehydogenic Corticoids: Normal Values and Observations in Hypertension. A. C. Corcoran, I. H. Page and H. P. Dustan.—p. 297.

Journal National Malaria Society, Columbia, S. C.

9:195-284 (Sept.) 1950. Partial Index

Malaria Mortality and Morbidity in the United States for the Years 1946, 1947 and 1948. E. C. Faust, J. A. Scott and J. E. Taylor.—p. 195.
Physiological Studies in Human Malarial Host. II. Blood, Plasma, "Extracellular" Fluid Volumes and Ionic Balance During Convalescence From Therapeutic P. Vivax and P. Falciparum Infections. R. R. Overman, T. S. Hill and Y. T. Wong.—p. 205.
Comparative Susceptibility of Anopheles Quadrimaculatus and Anopheles Freeborni to Infection by Plasmodium Vivax (St. Elizabeth Strain). R. W. Burgess and M. D. Young.—p. 218.
Studies in Human Malaria. XXVII. Observations on the Use of Pentaquine in Prevention and Treatment of Chesson Strain Vivax Malaria. G. R. Coatney, W. C. Cooper, D. E. Eyles and others.—p. 222.
Effects of Various Modifications of a Mass Staining Procedure on Transfer of Malarial Parasites Between Blood Films. A. W. Donaldson and M. M. Brooke.—p. 239.
Method of Infecting Aedes Aegypti With Plasmodium Gallinaceum From Chick Embryos. A. Akins.—p. 248.
Morphological Alteration in Plasmodium Gallinaceum. A. Wilcox, T. H. Tomlinson Jr. and M. B. Ballard.—p. 249.

Journal of Thoracic Surgery, St. Louis

20:335-504 (Sept.) 1950

Multiple Cancers: Primary in Lung and Other Sites. W. G. Cahan, F. S. Butler, W. L. Watson and J. L. Pool.—p. 335.
Surgical Management of Carcinoma of Lung: Study of Cases Treated at the Massachusetts General Hospital from 1930 to 1950. E. D. Churchill, R. H. Sweet, L. Soutter and J. G. Scannell.—p. 349.
Study of Pulmonary Hemodynamics During Pulmonary Resection. H. J. Mendelsohn, H. A. Zimmerman and A. Adelman.—p. 366.
Conservative Management of Empyema Following Total Pneumonectomy. E. M. Kent.—p. 374.
Utilization of Streptokinase-Streptodornase in Patient with Hemopneumothorax and Patient with Postneumonectomy Sanguineous Coagulum. C. T. Read and F. B. Berry.—p. 384.
Use of Streptokinase-Streptodornase in Treatment of Hemothorax. S. Sherry, W. S. Tillett and C. T. Read.—p. 393.
*Pulmonary Paraffinoma (Lipoid Pneumonia): Critical Study. R. Berg Jr. and T. H. Burford.—p. 418.
*Surgical Treatment in Pulmonary Coccidioidomycosis: Preliminary Report of 30 Cases. B. H. Cotton and J. W. Birsner.—p. 429.
Pectus Excavatum: Case Report with Pre- and Postoperative Angiocardiographic Studies. R. A. Dorner, P. G. Keil and D. J. Schissel.—p. 444.
Surgical Treatment of Corrosive Stenoses of Thoracic Part of Esophagus by Single-Stage Palliative Anastomosis: Intracervical Retrovascular Anastomosis Without Resection of Esophagus. V. Rapant and J. Hromada.—p. 454.
Artificial Intima for Perfusion Apparatuses. V. O. Björk.—p. 474.
Coexisting Bronchiogenic Carcinoma and Coccidioidomycosis: Report of Case. R. M. Hood.—p. 478.
Respiratory and Circulatory Studies After Pneumonectomy in Childhood. R. M. Peters, A. Roos, H. Black and others.—p. 484.
Pericardial Celomic Cysts and Pericardial Diverticula: Concept of Etiology and Report of Cases. W. I. Lillie, J. R. McDonald and O. T. Clagett.—p. 494.

Pulmonary Paraffinoma (Lipid Pneumonia).—Berg and Burford discuss pulmonary paraffinoma or advanced lipid pneumonia. In the infantile type of lipid pneumonia, alveoli contain oil-filled macrophages and free oil globules. The lesion is usually more extensive than the adult type and is unaccompanied with the late changes of fibrosis and granuloma formation. The adult type of lesion occurs in persons who are habitual users of mineral oil orally, intranasally or intratracheally. Neurogenic and mechanical interference to swallowing may be a factor but is by no means always present. Mineral oil is the causative agent. There may be no pulmonary symptoms or there may be chronic cough with or without sputum, hemoptysis, low-grade fever, frequent lower respiratory infections and dyspnea on exertion. The minimal symptoms presented by the patient are in striking contrast to the gross roentgenologic findings. The authors cite histories of six patients with pulmonary paraffinoma. Clinically, radiographically, at operation and even in frozen section the lesion is often confused with carcinoma. Roentgenologic examination usually reevals circumscribed tumor-like shadows without hilar adenopathy and with peribronchial infiltration, especially in the lower lobes. At operation the lesion may so mimic carcinoma as to result in needless pneumonectomy when lobectomy would have sufficed. The pathological picture of the early type of lipid pneumonia in adults resembles the gray hepatization stage of lobar pneumonia. The paraffinoma consists of one or a group of nodular masses of varying size lying in close proximity to major bronchial trunks. The mass is firm, and the cut surface is mottled yellow to grayish-yellow. Small cavities filled with oil are seen, and the entire cut surface is oily. When this histologic picture is found and when mineral oil is demonstrated by positive staining with Sudan red and by absence of staining with osmic acid, the lesion can be diagnosed as a paraffinoma.

Surgical Treatment in Pulmonary Coccidioidomycosis.—Cotton and Birsner present observations on 30 patients with pulmonary coccidioidomycosis whom they subjected to surgical treatment. The diagnosis was confirmed in all instances by one or more of the following laboratory signs and methods: spherules in sputum, complement-fixation test, culture, guinea pig inoculation and/or pathological specimen. Twenty-seven of the patients were operated on for cavities and the others for empyema. The following types of operations were done: pneumonectomy in five, lobectomy in 11, segmental lobectomy in eight, wedge resection with decortication in five and decortication plus thoracoplasty in one. Surgical treatment may prevent death and is effective in arresting the disease process. It does not cause dissemination of the disease to the skeletal or nervous system but may prevent dissemination. It is indicated in pulmonary coccidioidomycosis when cavities are of giant size, when the lesions are secondarily infected or blocked or when they have ruptured and caused spontaneous pneumothorax or empyema. Other indications for surgical treatment are nonexpansile lung, hemoptysis, "coccidioma" and failure of medical treatment. Such measures as bed rest, crushing of phrenic nerve, pneumothorax and pneumoperitoneum gave unsatisfactory results. Postsurgical examination of the specimens revealed two causes for the failure of collapse therapy: (1) the cavity, although appearing thin-walled roentgenographically, actually had a dense fibrinous wall; and (2) dense adhesions were present from the cavity wall to the thoracic cage. Lung complications resulting from pulmonary coccidioidomycosis should be evaluated surgically from the standpoint of pathological lesions, without regard to the fungus origin of the disease. Pulmonary cavities due to tuberculosis and coccidioidomycosis do not constitute a contraindication to surgical management.

Kansas Medical Society Journal, Topeka

51:417-456 (Sept.) 1950

Angiomata of Liver, Spleen and Mesentery: Case Report. D. M. Gibson and W. M. Wyatt.—p. 417.
Bilateral Popliteal Embolus: Case Report. L. J. Hanis.—p. 419.
Emergency Gastrectomy form Massive Hemorrhage From Duodenal Ulcer: Case Report. E. S. Brinton and H. W. Palmer.—p. 424.

Kentucky Medical Journal, Bowling Green

48:399-452 (Sept.) 1950

Some Endocrine Factors in Obstetrics and Gynecology. W. E. Oldham.—p. 423.
Asphyxia Neonatorum. J. L. Keyes.—p. 430.

48:453-498 (Oct.) 1950

Myelofibrosis: Report of Three Cases. E. H. Sanneman Jr., S. K. McIlvanie and M. F. Beard.—p. 453.
*Histoplasmosis of Infants with Report of Seven Cases. E. Kotcher and S. Leikin.—p. 459.
Cancer of Cervix. G. S. McClellan.—p. 466.
Pheochromocytoma. A. S. Warren.—p. 472.
Essential Hypertension. L. H. Winans.—p. 474.
Carcinoma of Biliary System and Pancreas. R. L. Sanders.—p. 483.

Histoplasmosis in Infants.—According to Kotcher and Leikin, histoplasmin sensitivity surveys indicate that Kentucky is in a highly endemic area. They report on seven infants, all of whom were less than 8 months old. The duration of symptoms previous to admission was from two to seven weeks, with an average of 4.3 weeks. The symptoms were fever, irritability, abnormal distention because of hepatosplenomegaly, diarrhea, yellow urine and lethargy. Six of the infants showed signs of upper respiratory infection. All had hepatosplenomegaly. Only one had lymphadenopathy. Six sets of skin tests were done on the parents. Five sets showed both parents to be positive reactors. In the other set the father was positive. Histoplasmin skin tests were done also on four of the patients. The results were negative in one and equivocal in another. Of the other two, one gave a positive reaction on initial examination and the reaction of the other became positive one month after being negative. Histoplasma capsulatum was recovered from the bone marrow in six patients, either on smear or culture or both. The blood revealed the organisms in five patients. The organisms were seen on microscopic examination of the splenic pulp of the patient who had a splenectomy. Roentgen examination of the chest revealed that three patients had infiltration in the lungs, mainly in the hilar regions. All patients were given supportive treatment, including blood transfusions, vitamins and parenteral fluids. All patients received penicillin. A sulfonamide was given to four and aureomycin to two infants. No remedial effect could be ascribed to penicillin or sulfonamide. One of the patients who received aureomycin seemed to improve temporarily. Five patients are known to have died. One patient, who was transferred to Vanderbilt Hospital for further treatment, was known to be living eight months after the onset of symptoms. The eighth patient was taken out of the hospital against the advice of physicians. Anemia, leukopenia, fever and hepatosplenomegaly were the most frequent symptoms. A definite diagnosis can be made on the basis of direct demonstration of the fungus by microscopic examination of stained bone marrow, peripheral blood and tissue impressions of material obtained by biopsy. These materials should also be cultured to recover the tuberculate chlamydospores characteristic of Histoplasma capsulatum.

Laryngoscope, St. Louis

60:849-952 (Sept.) 1950. Partial Index

Progression of Impaired Hearing for High Tones During Childhood. S. R. Guild.—p. 885.
Chemical Composition of Human Perilymph and Endolymph. J. G. Waltner and S. Raymond.—p. 912.
*Explanation of Certain Types of Tinnitus and Deafness (Lantern Demonstration). E. P. Fowler and E. P. Fowler Jr.—p. 919.
Cytologic Diagnosis of Primary Bronchogenic Carcinoma. J. J. O'Keefe.—p. 931.
Aureomycin in Treatment of Otitic and Ophthalmic Herpes Zoster. E. W. Gans.—p. 939.

Cause of Certain Types of Tinnitus.—The Fowlers observed that people who have deafness associated with severe tinnitus are usually highly sensitive, tense or nervous. In their experience, sudden deafness and tinnitus occur frequently with severe liver disturbances, with duodenal ulcer and ulcerative colitis. They believe that psychic and neurovascular factors play a part in this combination of symptoms. Formation of "sludges," which are agglutinated masses of erythrocytes, represent one factor. Sludges follow trauma, infectious or toxic diseases. Even a provocative remark may cause a concentration of the smaller vessels, which is often followed by sludging of the blood. The authors studied sludging and found that vessel contraction, sludging and the accompanying phenomena can affect not only the neural elements in the ear but also nonneural tissues. They did not demonstrate incontrovertibly that emotionally induced blood sludge produces tinnitus and deafness, but they feel that there is strong evidence that this may be the case in some patients.

Medicine, Baltimore

29:169-268 (Sept.) 1950

Pulmonary Insufficiency: IV. Study of 16 Cases of Large Pulmonary Air Cysts or Bullae. E. deF. Baldwin, K. A. Harden, D. G. Greene and others.—p. 169.
Anhidrosis: Etiologic Interpretation. W. B. Shelley, P. N. Horvath and D. M. Pillsbury.—p. 195.
Anorexia Nervosa: Clinical Psychiatric Study. J. C. Nemiah.—p. 225.

Military Surgeon, Washington, D. C.

107:261-344 (Oct.) 1950

The Navy Builds a Medical Center. L. W. Johnson.—p. 261.
Osteochondritis of Spine. P. O. Wells.—p. 270.
Topical Anesthesia of Intact Skin. J. J. Jacoby and H. M. Livingstone.—p. 282.
Spinal Anesthesia Using 2-Inch 25-Gauge Needle Minimizing Headaches: Report of 1,000 Cases. J. Kaufman.—p. 285.
Histopathologic Study of Simple Gingivitis. E. A. Tracy.—p. 287.
New Staining Technic for Vaginal Smears in Study of Exfoliative Cytology. I. Cohen and I. J. Yetwin.—p. 290.

Missouri State Medical Assn. Journal, St. Louis

47:637-716 (Sept.) 1950

Surgical Lesions of Stomach. W. H. Cole.—p. 653.
Value of Anesthesiologist to Various Fields of Medicine and Surgery. R. C. Adams and R. W. Ridley.—p. 658.
Subacute Bacterial Endocarditis. T. H. Hunter.—p. 661.
Causes of Sterility in Male. W. F. Melick.—p. 663.

New England Journal of Medicine, Boston

243:431-470 (Sept. 21) 1950

*Rupture of Interventricular Septum. M. J. Nareff, L. J. Sklar, F. T. Kelly and J. R. Reuling.—p. 431.
As Others See You! C. M. Fuess.—p. 435.
The Cast Syndrome: Review of Literature and Report of Case. M. H. Dorph.—p. 440.
*Immune Responses and Reactions to Diphtheria and Tetanus Toxoids, with Pertussis Vaccine, Aluminum Phosphate Precipitated. J. A. McComb and M. Z. Trafton.—p. 442.
Surgery of Esophagus. J. W. Strieder.—p. 445.

Rupture of Interventricular Septum.—Nareff and his associates describe four cases in which interventricular septal defects developed in the course of myocardial infarction. In three of these cases the septal rupture was recognized before death and was corroborated at necropsy. Rupture through the septum often results in a speedy death, although not as quickly as in nonseptal rupture of the myocardium. Perforation of the interventricular septum is usually preceded by a dramatic deterioration in the condition of the patient, although the time of the rupture may not be noticed. There may be pain, and there is usually peripheral circulatory failure and the rather abrupt appearance of, or increase in, the signs of failure of the right side of the heart. There is often associated nausea, vomiting and abdominal tenderness. Cyanosis, dyspnea and tachycardia may suggest pulmonary embolism. When the communication is small, there may be little effect on the cardiovascular dynamics. The most striking clinical feature is the appearance of a typical murmur, which is often loud and harsh. It is systolic in time, is often accompanied by a thrill and is usually located to the left of the lower end of the sternum. The diagnosis of interventricular septal rupture following myocardial infarction can be made when this condition is suggested by the clinical or electrocardiographic findings, or both, or when the presence of the typical harsh systolic murmur over the lower precordium associated with shock and often with *right-sided heart failure is noted.*

Clinical Study of Toxoids with Aluminum Phosphate.—McComb and Trafton point out that immunizations combining diphtheria and tetanus toxoids with pertussis vaccine formerly had alum or aluminum hydroxide as adjuvants. He reports on the use of a new product in which aluminum phosphate was used as an adjuvant to tetanus toxoid. The diphtheria and tetanus components were purified and concentrated by ammonium sulfate fractionation. The pertussis vaccine was prepared from phase 1 organisms grown on Cohen-Wheeler fluid medium and standardized at 20,000,000,000 organisms per cubic centimeter. This material was furnished to physicians, clinics and institutions who agreed to report the reactions. Efforts were made to obtain bloods one month after the last injection. The antigen was injected intramuscularly in three 0.5 cc. doses four weeks apart. The reactions following these injections as well as 134 "booster" doses were not severe either locally or generally in this group of children. The immunity response to the tetanus component was more than adequate one month after the last dose in all the children tested. As there were no previous tetanus immunizations in these children, the tetanus immunity as shown by postinjection titers should be an accurate index of the immunizing ability of this antigen. Adequate immunity was found in all the bloods tested for diphtheria antitoxin and in 75 per cent of those tested for pertussis immunity as indicated by the agglutination tests. The limitations in interpretation of these two tests are pointed out.

243:471-512 (Sept. 28) 1950

Postoperative Potassium Deficit and Metabolic Alkalosis. L. P. Eliel, O. H. Pearson and R. W. Rawson.—p. 471.
*Myasthenia Gravis: Clinical and Pathological Study of Case Associated with Primary Mediastinal Thymoma and Solitary Secondary Intrapulmonary Thymoma. H. A. Derow, M. J. Schlesinger and L. Persky.—p. 478.
Newer Occupational Diseases. J. B. Skinner.—p. 482.
Abuse of Bed Rest in Treatment of Myocardial Infarction. C. W. Irvin Jr. and A. M. Burgess Jr.—p. 486.
Current Problems in Physical Medicine and Rehabilitation. A. L. Watkins.—p. 489.

Myasthenia Gravis and Thymoma.—According to Derow and his associates, thymoma occurring in about one sixth of patients with myasthenia gravis is usually encapsulated, grows slowly and is generally regarded as a benign neoplasm. Ten per cent or less of these tumors extend by continuity into the adjacent pleura, lungs, pericardium or the superior vena cava. Separate, discrete, secondary deposits of thymomas, occasionally found at a distance on the pleura, have been interpreted as implants and not as true metastases. Metastases of this nature from thymomas in other organs have not been reported. None of the reported highly malignant, widely metastasizing tumors arising from the thymus have been associated with the symptoms of myasthenia gravis. The authors report a patient with typical symptoms of myasthenia gravis. During the first two and a half years of her five year illness, there was dysphagia and dysarthria related to fatigue, emotional upset or respiratory infection. Five years before her death a mediastinal mass was discovered on roentgen examination and was treated by radiation. The myasthenic symptoms were severer during the last two and a half years, and required oral administration of neostigmine (prostigmine®) bromide. Repeated roentgen examination revealed a mediastinal shadow, interpreted as a tumor at the onset of the illness. There were temporary changes in its size after roentgen irradiation, extension to the apex of the left lung prior to exploratory operation and, shortly before death, the appearance of two new shadows suggestive of metastases in the right lung. Operation and autopsy revealed that one of the shadows in the right lung was a pulmonary infarct. The irradiation did not prevent the spread of the mediastinal tumor and did not improve the myasthenic symptoms. A search of the literature failed to reveal a similar case.

New Jersey Medical Society Journal, Trenton

47:409-452 (Sept.) 1950

Role of General Practitioner in 1950 Medicine. A. H. Horland.—p. 412
Tracheo-Esophageal Anomaly in Siblings. B. Copleman, B. V. Cannata and W. London.—p. 415.
Typhoid Fever Treated with Chloromycetin: Case Report. J. F. Gleason and S. Goldstein.—p. 416.
Immunology in Hematology. F. W. Konzelmann.—p. 419.
Anorectal Disease and Gastro-Intestinal Disturbances. J. Gerendasy.—p. 421.
Congenital Absence of Gall Bladder. L. E. De Yoe and J. J. Castronuovo.—p. 422.
Iodo-Acetate Index in Cancer. S. M. Gilbert, J. E. Tausz and M. Tausz.—p. 424.
Multiple Myeloma: Report of Case. C. Bluefield, R. H. Ringewald and S. F. Cheung.—p. 426.
Banthine in Control of Duodenal Ulcer. A. I. Friedman.—p. 428.
Closed Brain Injuries. F. Frisch.—p. 431.
Clinical Use of Ballistocardiography. M. Greenberg.—p. 434.
Simplified Cord Tie. A. H. Krakower and Nabolotny.—p. 440.
We Must Fight On. Mrs. D. B. Allman.—p. 442.

North Carolina Medical Journal, Winston-Salem

11:473-544 (Sept.) 1950. Partial Index

Washington Viewpoint on Health Legislation. F. E. Wilson.—p. 473.
Physician-Hospital Relations. E. Hess.—p. 478.
Mid-Century Review of Public Health Activities in North Carolina. *J. W. R. Norton.—p. 483.*
Treatment of Discharges From the Vagina in Private Practice. G. G. Passmore.—p. 487.
Incidence of Cervical Diseases Seen in Private Practice, and Results of Treatment. L. C. Ogburn.—p. 490.
*Genital Smears in Diagnosis of Adenocarcinoma of the Uterus. W. K. Cuyler, L. A. Kaufmann and B. Carter.—p. 494.
Some Recent Development in Drug Therapy. J. P. Hendrix.—p. 498.
*Parathyroid Gland Transplantation. W. H. Bland, A. L. Chesson and J. B. Crow.—p. 501.

Genital Smears in Diagnosis of Adenocarcinoma.—According to Cuyler and his associates, smear preparations are far less accurate in the diagnosis of adenocarcinoma of the *uterus than in the* detection of squamous cell cervical cancer. Their technic of making and staining the smears was that of Papanicolaou and Traut, with slight modifications. An attempt was made to obtain smears on all new patients who came to the obstetric and gynecologic clinics and on all return patients over 30 years of age. Both vaginal and cervical smears were made. During the period 1947-1949, 33,655 genital smears from 10,029 women were studied. According to pathological studies, 434 of these patients had cancers involving the genital tract. In 384 patients the lesion was primary in the uterus. Squamous cell carcinoma of the cervix comprised 83.3 per cent of these lesions or 320 patients. Adenocarcinoma of the uterus was found in 16.4 per cent or 63 patients. Forty-six patients (11.9 per cent) had adenocarcinoma of the endometrium, and 17 patients (3.9 per cent) had adenocarcinoma of the endocervix or of the cervical stump. There was one adenoacanthoma of the uterus. The percentage of false negative diagnoses for adenocarcinoma of the uterus was 15.9, as compared to 8.4 for squamous cell cervical cancer. Histocytological similarities between hyperplastic endometrium and malignant endometrial lesions may account for errors in interpretation. Metaplasia may be responsible for the confusion of adenocarcinoma of the uterus with squamous cell carcinoma of the cervix. Faulty smears—those composed principally of blood and debris—account for a significant percentage of false negative diagnoses. It is suggested that more effort be made to establish criteria for the recognition of early adenocarcinomas and that the investigators in the field of smear cytology be not content to accept as insurmountable the difficulties of this method of detecting adenocarcinoma.

Transplantation of Parathyroid Gland.—Bland and his associates report a woman aged 40 who had been subject to sporadic tetanic seizures since 1943. She had had a subtotal thyroidectomy in 1941, with relief of symptoms for 18 months. She was subjected in 1943 to further removal of the thyroid tissue for the relief of recurrent hyperthyroidism. She occasionally had a drawing and numb feeling in her hands after the last operation. She was readmitted six weeks later with a complaint of carpopedal spasm and a feeling of drawing in her abdominal wall, feet and legs. Her blood calcium was 5.4 mg. per 100 cc. She was given calcium wafers and vitamin D. During the next five years the patient had tetanic seizures at intervals varying from a few hours to six weeks. She was readmitted to the hospital for regulatory treatment on four occasions. Her teeth had been crumbling and would not hold fillings. Transplantation of parathyroid tissue was advocated. Thyroid and parathyroids were removed from the body of a 29 year old man, who had died on arrival at the hospital. Eight bits of tissue thought to be parathyroid were excised and placed in sterile saline solution at a temperature of 99 F. The woman with hypoparathyroidism had meanwhile been prepared for operation. Eight small beds were formed in the body of the rectus muscle of the woman by blunt dissection, and one bit of parathyroid tissue was placed in each. The postoperative course was uneventful. The patient returned for follow-up examinations nine times during the subsequent four months. She occasionally felt nervous and jittery, and on one occasion felt a drawing sensation in her hands. There was no evidence of hypocalcemia. She continued to take 1 grain (60 mg.) of thyroid extract twice a day. Her appetite was good, and when last seen she was working a full eight hour day without difficulty. The patient appears to have been cured.

Public Health Reports, Washington, D. C.

65:1202-1234 (Sept. 22) 1950

Why Cancer "Control"? R. F. Kaiser.—p. 1203.
Trends in Age Distribution of Diphtheria in the United States. C. C. Dauer.—p. 1209.
*Tularemia in Man from a Domestic Rural Water Supply. W. L. Jellison, D. C. Epler, E. Kuhns and G. M. Kohls.—p. 1219.

65:1235-1274 (Sept. 29) 1950

Specific Causes of Illness Found in Monthly Canvesses of Families: Sample of Eastern Health District of Baltimore, 1938-43. S. D. Collins, F. R. Phillips and D. S. Oliver.—p. 1235.

65:1275-1314 (Oct. 6) 1950

Human Relationships in Tuberculosis. J. Hartz.—p. 1292.

Tularemia from Rural Water Supply.—Jellison and his co-workers point out that contamination of natural waters in Montana with Pasteurella tularensis has been reported by a number of investigators. Since 1942, repeated contamination of numerous streams, often persisting for months, has been demonstrated at the Rocky Mountain Laboratory. In most instances, the presence of the organism in water has been associated with the occurrence of tularemia in beavers and muskrats inhabiting the streams or ponds concerned. Many cases of tularemia have been contracted by persons who skinned or handled such diseased animals, but there has been little evidence of human infection resulting from direct contact with contaminated water. The occurrence in Gallatin County, Mont., of four cases of tularemia associated with one domestic water supply is the subject of the present report.

Radiology, Syracuse, N. Y.

55:321-476 (Sept.) 1950. Partial Index

Roentgen Findings in Tumors of Skull. B. R. Young.—p. 321.
Cerebral Angiography. C. F. List.—p. 327.
Cerebral Aerography. F. J. Hodges.—p. 330.
*Role of Radiation Therapy in Control of Malignant Neoplasms of Brain and Brain Stem. C. B. Peirce and J. Bouchard.—p. 337.
*Biophysical Studies of Methods Utilizing Fluorescein and Its Derivatives to Diagnose Brain Tumors. G. E. Moore, D. A. Kohl, J. F. Marvin and others.—p. 344.
Localization of Intrathoracic Lesions by Means of Postero-Anterior Roentgenogram: Silhouette Sign. B. Felson and H. Felson.—p. 363.
Effects of Internal Irradiation of Mice with P^{32}. Part I. Spleen, Lymph Nodes, Thymus, Bone and Bone Marrow. S. Warren, J. C. MacMillan and F. J. Dixon.—p. 375.
Upper Lobe Bronchial Abnormalities Simulating Significant Pulmonary Tuberculosis: with Seven Illustrative Cases. L. Schneider.—p. 390.
Benign Gastric Ulcer of Greater Curvature. R. L. Friedman and B. S. Epstein.—p. 398.
Accessory Sacroiliac Articulations with Arthritic Changes. L. A. Hadley.—p. 403.
Pseudo-Cystic Shadows of Right Pulmonary Base Due to Diaphragmatic Omental Hernia. F. Garcia Capurro and M. Arias Bellini.—p. 410.
Pirie's Bone. C. Gottlieb and S. L. Beranbaum.—p. 423.

Irradiation Therapy in Neoplasms of Brain.—Peirce and Bouchard treated with irradiation 243 patients with malignant tumors of the brain and stem. Glioblastoma multiforme, astrocytoma and the unclassifiable malignant gliomas comprised two thirds of the malignant neoplasms of the brain and brain stem. There were 13 instances of fibroblastoma and 32 of pituitary adenoma. Close cooperation between neurosurgeon and radiologist is imperative. Personal daily attention by the radiologist, with treatment according to the clinical status of the patient, is mandatory. The initial daily doses should be relatively small (100 r) and should be given preferably through one port. If no untoward reaction ensues, the daily dose and number of ports may be gradually increased, so that by the tenth day it will usually be possible to administer 150 to 200 r through each of two ports per day, with irradiation of a half-value layer 2 mm. Cu. The survival of patients with glioblastoma multiforme after operation and irradiation was 12 months or more in 47.9 per cent, 15 months or more in 29.1 per cent, 20 months or more in 22.9 per cent and 30 months or more in 8.3 per cent. A minimum tumor dose greater than 7500 r will be required to obtain further improvement. The survival of patients with astrocytoma after operation and irradiation was 12 months or more in 87.8 per cent, 24 months or more in 56.1 per cent, 36 months or more in 43.9 per cent, 48 months or more in 34 per cent, 72 months or more in 24.3 per cent and 96 months or more in 9.7 per cent. A minimum tumor dose of about 9,000 r may afford an additional period of useful life to an increasing number of these patients. The unclassified malignant gliomas appeared to fall in between the two previous types as to degree of malignancy and susceptibility to irradiation. In spite of the malignant character of these neoplasms, irradiation therapy has lengthened survival time and, in not a few cases, useful life. Conservative optimism is still warranted.

Fluorescein in Diagnosis of Brain Tumors.—According to Moore and co-workers, differences between normal and neoplastic brain tissues are accentuated with the use of sodium fluorescein, thus affording the neurosurgeon a better chance of diagnosing and localizing brain tumors. Sodium fluorescein is also of value in studying non-neoplastic lesions of the central nervous system. Attempts to render brain tumors radiopaque by the selective retention of radiopaque compounds were unsuccessful. The use of radioactive diiodofluorescein for the diagnosis and localization of brain tumors proved feasible. Clinical studies revealed inherent weakness in the method, such as the size of tumor that could be detected (tumors less than 3 cm. in diameter were often missed) and the failure of certain tumors to retain a sufficient quantity of dye to make their detection practicable. Detector geometry and shielding proved to be factors in the ultimate accuracy of the analysis as well as in the localization of brain tumors. Studies of the excretion of radioactive diiodofluorescein revealed that most of the dye is excreted in the bile and can be recovered from the feces. In patients with biliary obstruction the dye is excreted wholly in the urine. There is little danger of radioactive iodine (I^{131}) splitting off from radioactive diiodofluorescein.

Review of Gastroenterology, New York

17:723-852 (Sept.) 1950

- *Ulcerative Colitis. F. H. Lahey.—p. 723.
- Some Pertinent Factors in Cholelithiasis. J. M. T. Finney Jr.—p. 737.
- Problems of Acute Intestinal Obstruction. O. H. Wangensteen.—p. 756.
- *Surgical Treatment of Duodenal Ulcer: Comparison of Results of Treatment With and Without Vagotomy. G. Crile Jr.—p. 781.
- The Abdominal Incision. D. J. Duggan.—p. 795.
- Surgical Diseases of Pancreas. A. J. A. Campbell.—p. 800.
- Gastrojejunocolic Fistula. J. Tartakoff.—p. 810.
- Corticodiencephalic Gastrointestinal Syndromes in Epileptics (Part IX). T. S. P. Fitch, A. W. Pigott and S. M. Weingrow.—p. 817.

Ulcerative Colitis.—Lahey reports on 750 patients with ulcerative colitis. Most of these patients were treated medically, and 327 were followed from five to 15 years. Either definite improvement or complete relief was brought about by medical management in two thirds of those with milder forms and in one third of those with the severer forms of the disease. Emergencies arise that cannot be handled medically. Ileostomy can now be done with complete satisfaction. Comparison of mortality in two groups of patients, one of 145 in whom ileostomies were done early in the history of surgical management of ulcerative colitis and one later group of 70, showed a prohibitive mortality of 22.3 per cent in the first group and a mortality under 4 per cent in the second group. The lower mortality in the second group is due to the fact that surgical intervention was not performed on dying patients. Resection of the colon should not be delayed until joint changes occur. Ileostomy should be done before severe intoxication develops. Colectomy should be performed before too much blood is lost by hemorrhage. There is growing evidence that patients with ulcerative colitis from whom the colon is not removed have an increasing percentage of carcinomas. The patient who has undergone ileostomy can live with complete comfort and participate in every activity. Modern ileostomy bags are flat and are so made that they fit accurately, with no skin exposed. There is no skin irritation, and the area need not be skin-grafted.

Surgical Treatment of Duodenal Ulcer.—Crile treated over 400 patients with duodenal ulcers by vagotomy. The first 100 of these patients have now been followed for from one to two years. Bilateral vagotomy plus gastroenterostomy was done in 73 and pyloroplasty in 27 of this group. There was little difference in the end results in these two groups. One patient died in the hospital after the operation. One patient died of unrelated causes six months after the operation. Three patients could not be located within the first year. Of the remaining 59 patients, 35 had transitory or occasional diarrhea and 15 had mild transitory vomiting. Three patients had recurrence of their ulcer-like pain. No appreciable symptoms occured in 82 patients, 10 patients were improved and therapy failed in three. Results obtained in a series of 87 patients treated by vagotomy with gastroenterostomy or pyloroplasty were compared with those obtained in a group of 87 patients treated by gastric resection or gastroenterostomy in the years immediately preceding the advent of vagotomy. The severity of the disease was exactly the same in both groups. Four patients with vagotomy had ulcer-like pain as compared to 16 of the gastric resection groups. The incidence of persistent symptoms of ulcer thus was four times as high in the gastric resection group, and most of these patients were continuing some form of dietary management to control it. One jejunal ulcer developed over a period of three years in the vagotomy group and three in the gastric resection group. Four hemorrhages occurred after gastric resection or gastroenterostomy, and there were no hemorrhages in the other group. No death occurred in 257 consecutive vagatomies with gastroenterostomy or pyloroplasty. This operation, therefore, is relatively safe. It should be reserved for patients with complicated duodenal ulcers. A posterior gastroenterostomy should be performed at the most dependent aspect of the greater curvature to drain the denervated stomach.

South Carolina Medical Assn. Journal, Florence

46:273-304 (Sept.) 1950

- Acute Surgical Abdomen in Therapeutic Pneumo-Peritoneum. J. W. Fouche.—p. 273.
- Care of the Premature Infant. W. M. Hart.—p. 275.
- Transverse Abdominal Incisions. E. M. Colvin and F. T. Wallace. —p. 277.
- Reinforced Inguinal Herniorrhaphy. G. V. Rosenberg.—p. 279.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

58:451-522 (Sept.) 1950

- Method of Treating Fracture—Dislocations of Cervical Spine: Employing Suboccipital Skeletal Traction. R. Anderson and I. Loughlen.—p. 451.
- Deciduation and Massive Hemorrhage of Omentum in Final Month of Pregnancy. G. F. Melody.—p. 460.
- Diagnosis and Treatment of Chronic Spontaneous Pneumothroax. F. S. Dolley and L. A. Brewer III.—p. 463.

SYMPOSIUM ON THE ESTROGENS

- Physiology of Estrogenic Hormones. C. F. Fluhmann.—p. 472.
- Chemistry and Metabolism of Estrogens. H. K. Graham and B. F. Stimmel.—p. 476.
- *Clinical Usefulness of Estrogens. E. W. Page.—p. 482.
- Estrogen Imbalance and Uterine Cancer. L. A. Emge.—p. 490.

Clinical Usefulness of Estrogenic Hormones.—Page bases his evaluation of the use of estrogens on personal experience and on the opinions expressed by many medical associates. He discusses routes of administration, choice of preparations, dosage and the physiological actions of estrogens. He admits that his conclusions as to the usefulness of the hormones might be regarded as rather arbitrary, since it is doubtful whether any two physicians would independently arrive at the same conclusions. Nevertheless, he feels that it might stimulate thoughtful discussion to offer a tentative classification of the usefulness of estrogens in practice. For four groups of disorders, estrogens are classified as follows: (1) of proven usefulness, (2) possibly useful or suitable for adjunctive therapy, (3) doubtful indications and (4) of experimental value (judgment reserved). Before estrogen treatment is instituted the following questions should be answered: 1. Is there an indication for an estrogen? 2. Is there a demonstrable deficiency, or is the hormone to be used to inhibit pituitary function, to neutralize an androgenic effect or to utilize its anabolic effect on the skeletal system? 3. Is this the minimal dosage necessary to accomplish the objective, and is the timing correct? 4. Have carcinoma, endometriosis, myomas, a fibroadenoma of the breast or other organic lesions that might be stimulated unfavorably by estrogens been ruled out? 5. Could harmful effects result? Will the treatment produce withdrawal bleeding in a postmenopausal woman, thus substituting a diagnostic problem for a simple therapeutic one? May it interfere with a normal menstrual cycle in such a way as to defeat the objective? Has the patient been prepared for the possible effects of estrogen? 6. Does the severity of the symptoms justify the means? Is this the most economical preparation suitable for the purpose and the most sensible route of administration?

Wisconsin Medical Journal, Madison

49:751-878 (Sept.) 1950

- Diagnosis in Chronic Liver Disease. M. C. F. Lindert.—p. 769.
- *Surgical Treatment of Ulcerative Colitis. J. M. Sullivan.—p. 773.
- Anesthesia and Analgesia for Obstetric Patient from Viewpoint of an Anesthesiologist. J. W. Bookhamer.—p. 778.
- Neoplasma of Genitourinary System in Children. N. W. Bourne.—p. 781.
- Miscellaneous Neoplasma in Infancy and Childhood. A. A. Schaefer. —p. 783.
- Multiple Sclerosis and the State of Wisconsin. H. H. Reese and E. P. Roemer.—p. 787.
- Nephritis. B. J. Peters.—p. 790.
- Hypoglycemic Reactions in Diabetes. M. Hargrove.—p. 793.

Surgical Treatment of Ulcerative Colitis.—Sullivan believes that many patients with ulcerative colitis require surgical treatment. The time-honored treatment of ileostomy followed by colectomy controls the disease, but this treatment requires two major operations and meticulous attention to detail. Furthermore, few cases have been reported in which bowel continuity was reestablished by ileoproctostomy, because operation was not performed until irreversible changes had been produced. The author performed vagotomy in seven patients with ulcerative colitis and found that this operation was followed by immediate and dramatic improvement in six and slower improvement in one. This new surgical approach to the treatment of ulcerative colitis offers possibilities, and further trial is indicated.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted.
Single case reports and trials of new drugs are usually omitted.

British Journal of Cancer, London

4:147-258 (June) 1950. Partial Index

Cancer of Stomach in Large Towns of England and Wales, 1921-39. P. Stocks.—p. 147.
*Arsenic Content of Tobacco and of Tobacco Smoke. M. E. Daff and E. L. Kennaway.—p. 173.
Mechanism of Liver Catalase Depressing Action of Tumours in Mice. D. H. Adams.—p. 183.
Induction of Tumours Following Direct Implantation of 20-Methylcholanthrene into Uterus of Mice. G. M. Bonser and J. M. Robson. —p. 196.
Beryllium Bone Sarcomata in Rabbits. J. M. Barnes, F. A. Denz and H. A. Sissons.—p. 212.
*Effect of Radioactive Iodine Alone and in Combination with Methylthiouracil and Acetylaminofluorene upon Tumour Production in Rat's Thyroid Gland. I. Doniach.—p. 223.
Studies on Induction of Lung Cancer in Mice. E. S. Horning.—p. 235.
Strain Differences in Mice to Carcinogenic Action of Urethane and Its Non-Carcinogenicity in Chicks and Guinea-Pigs. P. N. Cowen. —p. 245.

Arsenic Content of Tobacco.—Daff and Kennaway investigated the arsenic content of 15 brands of cigarets and found that the amounts present varied from none to 106 micrograms of arsenic trioxide per gram of tobacco. The concentration of arsenic in cigarets containing the larger amounts varied greatly. This irregularity is probably due to the method by which the arsenic could have been introduced, namely, by the spraying of the plants with insecticides. If the arsenic were absorbed by the roots, one might expect a more uniform distribution. In some areas, only the seedlings are sprayed, and presumably this arsenic is lost in the course of transplantation and further growth. The authors are obtaining data on the use of arsenical solutions in the areas where the tobaccos examined are grown. Of the arsenic volatilized in smoking, a part must escape while the cigaret is not in the smoker's mouth, and a part of what he inspires is expired again, hence the amount retained must be small.

Tumor Production in Thyroid.—Doniach attempted to determine whether radioactive iodine (I^{131}) is carcinogenic to the thyroid gland of the rat. This seemed likely, since radioactive iodine is specifically concentrated in the thyroid, whose cells are thereby submitted to a course of beta ray irradiation. The problem is important, since this iodine is being used in clinical medicine, in both tracer and therapeutic doses. Hyperplasia and adenomas of the thyroid have been produced by goitrogens alone and in combination with the carcinogen acetylaminofluorene. The carcinogenic potency on the thyroid of 32 microcuries of radioactive thyroid was tested in a small series of rats alone, in combination with methylthiouracil, with acetylaminofluorene and with the combined drugs. Radioactive iodine increased the incidence of thyroid adenomas in all groups except those treated with acetylaminofluorene. The adenomas were larger in size as well as in number and showed evidence of malignancy by a gross increase in size and by dissemination outside the thyroid in two instances. The assessment of radiation dosage administered to the thyroid by radioactive iodine is difficult. The percentage of absorption by the thyroid varies with the iodine content of the diet and the surrounding temperature. The authors found it to vary from 10 per cent in hot weather to 30 per cent in cool weather, 24 hours after administration of radioactive iodine. There is a wide variation in concentration from follicle to follicle. The peripheral follicles in the rat take up considerably less iodine than the central follicles. This is only partly balanced by the more rapid disappearance of iodine from the central follicles. The radiation effects are due mostly to beta radiation, since most of the gamma rays, which are much more penetrating, will not be absorbed in the small thyroid of the rat. The human thyroid is 1,000 times heavier than that of the rat, but doses of 10 to 20 millicuries might be regarded as likely to induce adenomas and possibly occasional cancer in the hyperplastic glands. This is just the order of dosage prescribed for the treatment of thyrotoxicosis.

British Journal of Ophthalmology, London

34:517-576 (Sept.) 1950

Comparative Provocative Tests in Glaucoma. W. Leydhecker.—p. 535.
Use of Sodium Fluorescein in Assessing Rate of Healing in Corneal Ulcers. F. W. Campbell and T. A. S. Boyd.—p. 545.
Electroretinogram in Glaucomatous Eyes. G. Leydhecker.—p. 550.
Operation for Entropion of Upper Eyelid in Trachoma. T. Torgersruud.—p. 555.
Two Cases of Acetic Acid Burns of Cornea. C. M. Shafto.—p. 559.
Day-Blindness. S. Gördüren.—p. 563.
Treatment of Congenital Glaucoma. J. B. McArevey.—p. 568.

British Medical Journal, London

2:691-738 (Sept. 23) 1950

Pharmacological Action of Antihistamine Compounds. J. H. Burn. —p. 691.
Congenital Heart Disease: Review of Its Clinical Aspects in Light of Experience Gained by Means of Modern Techniques. II. P. Wood. —p. 693.
Care of the Chronic Sick—V (Investigation of 393 Patients Seeking Admission to Hospital for the Chronic Sick). C. R. Lowe.—p. 699.
*Radiological and Pathological Correlation of Miliary Tuberculosis of Lungs in Children with Special Reference to Choroidal Tubercles. J. L. Emery and J. Lorber.—p. 702.
Sulphonamide Sensitivity of H. Influenza Strains with Special Reference to Combined Use of Antibacterial Drugs. K. Zinnemann.—p. 705.
Chronic Adhesive Spinal Meningitis Associated with Lumbar Naevus and Dimple. T. R. Savage.—p. 709.
*Case of Cardiac Arrest: Vagal Inhibition Relieved by Procaine. H. L. M. Roualle.—p. 712.

Miliary Tuberculosis: Radiological and Pathological Aspects.—Emery and Lorber report a consecutive series of necropsies in which the diagnosis of miliary tuberculosis of the lungs was established in 52 children under 14. When a discrepancy between the radiological and postmortem findings became apparent, it was decided to obtain a wider opinion on the roentgen appearances. The films were referred to a panel of two radiologists and two pediatricians. The assessors were informed that all these deaths were from tuberculosis and were asked to make a radiological diagnosis of the presence, doubtful presence or absence of miliary tuberculosis. Radiographs of the chest taken within 14 days of death were available in all cases. The fundus oculi was examined for choroidal tubercles in 48 children. The roentgenograms of 18, or about one third of the cases, were studied by the panel. Choroidal tubercles were seen in 25 of the 48 cases. Of the 52 cases, 28 were given diagnoses during the life of the patient. The tubercles were more numerous and larger in the 18 roentgen-positive than in the 34 roentgen-negative cases. Choroidal tubercles were present in a significantly higher proportion in the former (15 of 17) than in the latter (10 of 31). Clinical features consistent with miliary tuberculosis and the presence of early choroidal tubercles establish the diagnosis irrespective of the radiological observations. The present methods of diagnosis of miliary tuberculosis are not sufficiently sensitive.

Cardiac Arrest Relieved by Procaine.—Roualle describes a case of cardiac arrest in which complete asystole persisted for 45 minutes despite cardiac massage and injection of epinephrine (adrenalin®). Normal rhythm was restored after two intracardiac injections of procaine hydrochloride, though the patient survived for only four hours. The immediate use of procaine injected into the heart, in preference to or with epinephrine, is suggested. In view of its delayed action, cardiac massage should be performed to prevent interruption in the cerebral circulation.

Journal of Bone and Joint Surgery, London

32B:291-450 (Aug.) 1950

Results of Transposition of Ulnar Nerve for Traumatic Ulnar Neuritis. A. J. McGowan.—p. 293.
Joint Débridement for Osteoarthritis of the Knee. B. Isserlin.—p. 302.
Pregnancy and Skeletal Tuberculosis. M. C. Wilkinson.—p. 307.
Fractures of Head of Radius in Children. C. C. Jeffery.—p. 314.
Spondylolisthesis with Intact Neural Arch—So-Called Pseudo-Spondylolisthesis. I. Macnab.—p. 325.
Cherubism—Familial Fibrous Dysplasia of the Jaws. W. A. Jones, J. Gerri and J. Pritchard.—p. 334.
Osteochondritis Dissecans of Elbow Joint: Clinical Study. N. Roberts and R. Hughes.—p. 348.
Two Cases of Osteochondritis Dissecans Affecting Several Joints. B. M. Hay.—p 361.
Osteoid Osteoma with Unusual Symptoms: Case Report. O. J. Vaughan-Jackson.—p. 368.
Rupture of Extensor Pollicis Longus Tendon After Colles Fracture. D. Trevor.—p. 370.
Dyschondroplasia with Haemangiomata (Maffucci's Syndrome): Report of Case Complicated by Intracranial Chondrosarcoma. C. Strang and I. Rannie.—p. 376.
Large Calcified Lipoma of Thigh: Report of Case. P. N. Robson.—p. 384.
Bilateral Perilunar Dislocation of Carpus: Report of Case. H. W. Fitzgerald.—p. 386.
Non-Union of Triquetrum: Report of Case. F. C. Durbin.—p. 388.
Excision of Shaft of Tibia for Sarcoma: Examination 43 Years After Replacement by Fibular Graft. F. Gentil.—p. 389.
Amputation Above or Below the Knee for Primary Peripheral Vascular Disease. H. G. Smith.—p. 392.

Journal of Mental Science, London

96:619-799 (July) 1950. **Partial Index**

*Follow-Up Investigation of 330 Cases Treated by Prefrontal Leukotomy. E. Stengel.—p. 633.
Congenital Malformations in Teeth and Eyes in Mental Defectives. R. Spitzer and I. Mann.—p. 681.
Function and Training of the Clinical Psychologist. H. J. Eysenck.—p. 710.
Abilities of Male Mental Hospital Patients. H. Halstead.—p. 726.
Psychology of Electric Convulsion Treatment. R. A. Sandison.—p. 734.
Cerebral Dysrhythmia Induced by Photic and Chemical Stimulation as Method of Treatment in Psychiatry. P. O'Flanagan, P. W. Smith and R. B. Taylor.—p. 745.
Observations on Effect of Myanesin (3 Orthotoloxy-I, 2 Propaneidol or Tolserol) *on Epileptic Thresholds and Some Psychiatric Conditions.* R. K. Freudenberg.—p. 751.
Migraine and Psychopathic Behaviour. S. Coleman.—p. 758.
Psycho-Analytic *Approach to Treatment of Patients in Groups.* H. Ezriel.—p. 774.
Electronarcosis: Safe Technique for Routine Administration Under Anesthesia and Eulissen (Decamethonium Iodide or C.10). C. R. Harris.—p. 788.
Origin of Head-Banging: Suggested Explanation with Illustrative Case-History. J. FitzHerbert.—p. 793.
Changes Continuing After Termination of Treatment of Mental Defectives with Aneurin. G. de M. Rudolf.—p. 796.
Galactose Tolerance Test in Phenylketonuria. V. A. Cowie.—p. 799.

Follow-Up of Prefrontal Leukotomy Cases.—Stengel reports a follow-up study on 330 of 345 patients who were subjected to prefrontal leukotomy between 1942 and 1947. The limitations of leukotomy in the treatment of schizophrenic reaction types of disorder and paranoid states have again been demonstrated in these patients. Full remissions have been observed mainly in patients whose personalities and mental conditions had features that are generally regarded as assets from the point of view of prognosis. There is no general consensus as to whether such patients should be operated on. Retrospectively, it is impossible to judge what would have been the fate of the patients who had a full remission following leukotomy if they had not had the operation. That the remission was related to the operation was clear from the fact that leukotomy was followed by immediate or almost immediate improvement. Leukotomy, therefore, set in motion a process that might have taken place without it. Among the various affective reaction types, the results have been relatively most satisfactory in the involutional group, while in patients with manic periods it has been less favorable. The outcome in patients with purely depressive symptoms, i. e., in the recurrent and involutional depressions, was more favorable than in those with manic periods. The planes of the cuts were varied according to the suggestions of the psychiatrists. In certain cases an anterior cut was aimed at, in others a middle or posterior cut, the latter especially in those cases in which general behavior was gravely disturbed, as in chronic catatonics. However, in view of the anatomic observations in the brains of patients who died some time after leukotomy, an attempt at correlating clinical changes with the location of the cuts aimed at by the surgeon seems futile. The emergence and aggravation of antisocial personality features following leukotomy in patients with affective reaction types of disorder has been found to depend not only on the previous personality, but also on certain features of the mental disorder. Epileptic fits occurred in a higher percentage of male than of female patients. Epileptic fits were observed in a much higher percentage of schizophrenic and paranoid patients than of patients with affective reaction types of disorder.

Lancet, London

2:425-464 (Sept. 30) 1950

Propagation of the Unit. L. S. Penrose.—p. 425.
*Potentiation of Sulphonamide by "L Substance." J. W. Bigger and G. C. Ware.—p. 427.
Feeding of School-Children. F. Roberts.—p. 434.
Action of Proguanil on P. Berghei: Inhibition by *p*-Aminobenzoic Acid. J. P. Thurston.—p. 438.
Ileojejunal Insufficiency Arising from Faulty Anastomosis. C. F. J. Cropper and P. W. Houghton.—p. 439.
Ileojejunal Insufficiency: Unusual Case of Tropical Sprue. C. F. J. Cropper and A. M. Clark.—p. 442.

Potentiation of Sulfonamide by L Substance.—Bigger and Ware believe that the sensitivity of a bacterium to sulfonamides is grossly underrated when ordinary culture media are used. Treatment of such media by the method of Harper *and Cawston increases the apparent sensitivity of the bacterium* to sulfonamides, but only to a limited extent.. Bacterium coli, which grows well in a simple synthetic medium, is much more sensitive to sulfonamides in a synthetic medium than it is in mediums treated by the method of Harper and Cawston. The authors describe an improved synthetic medium. The action of sulfathiazole on Bact. coli in synthetic medium is bacteriofrenic rather than bacteriostatic or bactericidal. The addition of a small amount (1 : 20,000) of lemco® (meat extract preparation) to synthetic medium potentiates sulfathiazole so that its action is bactericidal. The substance responsible for the potentiating action of lemco is present in meat extracts, serum, red blood cells, urine and yeast. The provisional name, L substance, has been given *to this constituent of lemco.®* The L substance, which is basic, has been concentrated and partially purified but not yet identified. Since L substance is present in various body fluids that contain little, if any, sulfonamide antagonizers, it is suggested that, in the living body, the action of sulfonamides is bactericidal rather than bacteriofrenic or bacteriostatic, and that, to explain their therapeutic effect, it is unnecessary to evoke the ordinary defence mechanisms of the body. The L substance differs from the substance in horse erythrocytes that is responsible for the Harper and Cawston effect.

Medical Journal of Australia, Sydney

2:241-276 (Aug. 12) 1950

Poliomyelitis and Its Relation to Recent Tonsillectomy. J. B. Dowe.—p. 241.
*Poliomyelitis and Tonsillectomy. Review of Literature for the Oto-Rhino-Laryngological Society of New South Wales. R. E. Dunn.—p. 243.
Treatment of Post-Partum and Menopausal Obesity. H. Halper.—p. 246.
Place of Restorative Resections and Other Operations in Treatment of Carcinoma of Rectum. *E. Wilson.—p. 248.*
Some Difficulties in Interpretation of Hematological Data, with Particular Reference to Estimation *of Capillary Fragility. J. H. Bolton.—p. 256.*

Poliomyelitis and Tonsillectomy.—According to Dunn, there exist two groups of critics with regard to poliomyelitis and tonsillectomy. One group advises caution and cessation of tonsillectomy during the epidemic period of poliomyelitis. The evidence to support this advice. Quoting chiefly from the American literature, Dunn finds that "we are back where we started." Although a few writers have claimed that the tonsillectomy-poliomyelitis sequence is coincidental, they do not suggest that the operation be performed when the number of cases has reached epidemic proportions. The type of poliomyelitis otolaryngologists suggest that the physicians have *insufficient* following tonsillectomy is usually bulbar. Numerous cases of bulbar poliomyelitis following tonsillectomy have been reported. If the still undetermined risk of removing tonsils and adenoids during the poliomyelitis season is to be reduced by means other than postponing the operation, there is a need for (1) a practical method of determining the presence, or absence, of the poliomyelitis virus in the prospective patient and (2) a practical method of obtaining information concerning the incidence of poliomyelitis victims in the vicinity of the prospective tonsillectomy patient s home and school The risks involved in tonsillectomy during the epidemic season should be considered, together with the other numerous hazards of tonsillectomy and the urgency of indications for the operation

Practitioner, London

165:107-208 (Aug) 1950

Employment of Elderly Workers L Amulree —p 111
The Ageing Heart P C Gibson —p 115
Pulmonary Disease in the Elderly J L Livingstone —p 124
Skin Disorders in the Elderly S Thomson —p 128
Genito Urinary Disturbances in Old Age H P Winsbury White —p 135
Gynaecological Problems of Old Age J J O Sullivan —p 141
Diet in Old Age G J Langley —p 143
Facilities Available for Care of the Elderly in the Home M W Warren —p 156
Air Embolism C A Birch —p 164
*Medical Aspects of Hair Dyeing E W P Thomas —p 171

Medical Aspects of Hair Dyeing —Thomas points out that until comparatively recently the only dyes available were either natural vegetable colors or metallic salts, sometimes used in combination Hair dyeing was revolutionized in about 1880 by the discovery of the synthetic organic dyes, paraphenylenediamine and allied chemicals Hair dyes of the paraphenylenediamine group are potential skin irritants in the class known as sensitizers They are contact allergens able to create a state of epidermal sensitization, which manifests itself as an eczematous dermatitis in the area of contact Only a small proportion of those exposed acquire sensitization An estimate that 4 per cent of the general population have an idiosyncrasy toward this chemical is now regarded as far too high, nevertheless, the dye is a skin sensitizer and is responsible for nearly all cases of hair dye dermatitis, as well as being a cause of occupational dermatitis among hairdressers A patch test should be carried out before each application of a para dye, whether the dye be used for the whole head or merely for touching up All reputable hairdressers recognize that this test should be done, but the client may be impatient Some hairdressers have but a hazy idea of the significance of the skin test and believe that once the hair has been dyed without ill effect the dye can be used thence forward without fear. Allergic sensitization, however, may develop after prolonged periods of use of the dye Patch tests are by no means infallible and, when negative, are no absolute guarantee against dermatitis These dyes should not be applied during pregnancy or menstruation or in the presence of eczema or dermatitis on any part of the body It is also best to avoid them if the general health is below par, when the threshold of skin sensitivity may be temporarily lowered They must never be applied to the eyebrows or eyelashes

South African Medical Journal, Cape Town

24:705-724 (Aug 26) 1950 Partial Index

Small Intestinal Volvulus in Bantu P R Dickson —p 705
Double Plating of Fractured Bones R J Fleming —p 709
*New Treatment for Polyneuritis P Merof —p 715

New Treatment of Polyneuritis —Menof points out that hepatic enlargement and tenderness are commonly encountered in alcoholic and diabetic polyneuritis Evidence of liver damage is present also when polyneuritis is associated with pellagra, arsenical poisoning and pernicious (Addison's) anemia Disturbed liver function due to fatty change might be an important factor in the causation of polyneuritis, and if the liver produces or stores a substance necessary for the nutrition of nerve tissue, it is conceivable that this might be diminished in the aforementioned disturbances Since vitamin B_{12} rapidly counteracts the neurological symptoms of pernicious anemia, Menof administered it to patients with alcoholic or diabetic polyneuritis The dosage was considerably larger than that recommended for the treatment of pernicious anemia. The author began with 60 micrograms and finally gave as much as 210 micrograms in one injection The best result was achieved with this large dose Apart from a little localized tenderness owing to the large size of the intramuscular injection (7 cc), no untoward effects were experienced either with this or with any other of the doses used The injection was usually given into the gluteal region The 11 reported case histories indicate that the results of the treatment were encouraging The author feels that equally satisfactory results might be obtained in other forms of polyneuritis and in other nervous disorders associated with chronic alcoholism, e g delirium tremens, Korsakoff s psychosis, superior hemorrhagic polioencephalitis (Wernicke's encephalopathy) and alcoholic hallucinosis These conditions might well result from malnutrition adversely affecting the liver This new therapeutic weapon might also be used in such diseases as progressive muscular atrophy

Acta Endocrinologica, Copenhagen

4:1-102 (No 1) 1950 Partial Index

Estrogen Production by Sertoli Cells in Etiology of Benign Senile Hypertrophy of Human Prostate Testicular "Lipoid Cell Ratio" and Estrogen Androgen Quotient in Human Male G Teilum —p 43
**Pregnancy and Diabetes Mellitus* H Zilliacus —p 63
Simple Method for Determination of Neutral 17 Ketosteroids Comparison of Results with Dingemanse Method A Kassenaar, L Huis in't Veld P Siderius and others —p 79

Pregnancy and Diabetes Mellitus —Zilliacus states that among 31,976 deliveries over a 15 year period at the Women's Clinic of Helsingfors University there were 32 pregnancies (25 mothers) that were complicated by diabetes mellitus The diabetes became worse during the pregnancy in seven instances; an improvement was noted in two, and the pregnancy had no effect on the diabetes in 10 There were signs of toxemia of pregnancy in 13 patients In two infants with birth weights of 6 450 Gm and 5,450 Gm, delivery was complicated by the abnormal width of their shoulders In several infants the weight and height figures at birth were abnormally high Some women had had abnormally large infants during their prediabetic period The fetal and neonatal mortality was high, so that only nine of the infants were alive after three months Although insulin therapy has raised the fertility of diabetic women and has almost completely eliminated the mortality, it has not reduced the high fetal and neonatal death rate Experiments have revealed that the growth hormone of the anterior pituitary has a diabetogenic effect in experimental animals This observation suggests that the pituitary may possibly be causative in the abnormally high weight and height figures noted in the fetuses of diabetic women during the prediabetic period and during manifest diabetes

Klinische Wochenschrift, Heidelberg

28:593-624 (Sept 15) 1950 Partial Index

Clinical Aspects and Epidemiology of Toxoplasmosis G Kemp —p 602
Parasitology, Pathology and Serology of Fatal Infections with Toxoplasma Gondii G Pickarski and H V Torne —p 606
*Prognostic Significance of Ocular Symptoms During Streptomycin Therapy of Tuberculous Meningitis and Miliary Tuberculosis E Heinsius —p 609
Circulatory Insufficiency as Result of Barbituric Acid Poisoning E Haynal and R Held —p 612
Choline in Treatment of Toxic Diseases of Liver M Reiter and O Wieland —p 615
*Tolerance Test with Insulin W Winkler and W Froeschlin —p 617
*Insulin Tolerance Differences in Insulin Shock Doses W Winkler —p 619

Ocular Changes in Prognosis of Tuberculous Meningitis —Heinsius points out that since streptomycin has been used in the treatment of tuberculous meningitis and in miliary tuberculosis, the longer survival of these patients has disclosed a higher incidence of ocular changes Eye involvement is now observed in 92 per cent of these patients, whereas the percentage formerly varied between 50 and 75 per cent There is a certain parallelism between the ocular and general changes Repeated ophthalmologic studies on 98 patients (81 with tuberculous meningitis and 11 with miliary tuberculosis) convinced the author that the ocular changes may even furnish prognostic data He compares records of ocular changes before and since the streptomycin era Choked disk was observed formerly in only about 30 per cent of the cases, whereas now it is present in nearly 60 per cent The prognostic significance of the ocular changes is especially noticeable in stasis symptoms, such as in papillary edema, choked disk and venous stasis As these symptoms subside, a tendency to improvement in the general condition becomes evident, the temperature decreases and the sensory functions and mental status show improvement If, on the other hand, the symptoms of stasis increase, the general condition and sensory activity also become impaired and the temperature usually rises. Optic atrophy usually indicates a fatal termination. Oculomotor paralysis and prolonged pupillary disturbances also indicate a serious condition and an unfavorable prognosis. The appearance of new foci in the choroid are regarded by Walsh as indicative of an unfavorable prognosis, but the author and others regard them as a manifestation of a new hematogenous dissemination, which can be cured by streptomycin therapy. Photophobia and retardation of the pupillary reaction, which may be mistaken for pupillary rigidity and defective convergence, are cited by the author as early symptoms of tuberculous meningitis. In view of the great importance of ocular symptoms in the prognosis of tuberculous meningitis and miliary tuberculosis, whenever streptomycin therapy is employed in these conditions, ophthalmologic control examination should be made once or twice a week.

Insulin Tolerance.—Winkler and Froeschlin made insulin tolerance tests on three groups of students of either the pyknic, leptosomatic or athletic type. They found that in those of the pyknic type the early decrease in blood sugar content is followed by an effective counterruglation, which brings the blood sugar level again to normal or even above it. This again is followed by a decrease. This gives the blood sugar curve a wavelike appearance. Leptosomatic persons also show a rapid decrease in the blood sugar, but the counterregulation is slight. The test curve is characterized by a steep decline and a restless zigzag outline. In persons of the athletic type, the decrease in blood pressure is retarded and the curve is flat, the counterregulation being rather weak. These results indicate that the contrainsular regulation of the blood sugar varies in the different constitutional types. Persons of the pyknic type have a relatively well functioning adrenal system, and their hypophysial counterregulation also is superior to that of the other constitutional types.

Differences in Insulin Shock Dose.—Winkler says since insulin tolerance tests indicated a stronger counterregulation in persons of the pyknic type, it seemed likely that persons of this type would require larger doses of insulin during shock therapy. The first shock treatment is a fairly exact indicator of the insulin tolerance. The first shock dose has been known to vary in extreme cases between 8 and 1,000 units, but usually between 60 and 200 units. Successive shock treatments often require increased doses, but smaller doses may occasionally suffice. On investigating the records of 817 patients who had been given insulin shock treatment and grouping them into constitutional types (312 leptosome, 125 pyknic, 72 athletic and the remainder mixed), the author found that patients of the leptosomic type required much smaller doses of insulin (97 to 110 units) for the induction of shock than did the pyknic types (140 to 170 units) and that the doses for the athletic types were about intermediate between these two. Thus the figures on the insulin shock doses corroborate the results of the insulin tolerance tests.

Medizinische Klinik, Munich

45:1073-1128 (Sept. 1) 1950. Partial Index

Panmyelopathy as Sequel of Chronic Lesion Produced by Roentgen and Radium Rays. H. Leubner.—p. 1076.
*Penicillin in Treatment of Scarlet Fever. F. Lasch.—p. 1082.
Differential Diagnosis and Treatment of Angina Pectoris. K. Pelzer.—p. 1085.
*Streptomycin Therapy in Tuberculosis of Vertebral Column: Life-Saving Effect. R. Haizmann and R. Brändle.—p. 1088.
Treatment of Oropharyngeal Erysipelas with Penicillin. H. Lausecker.—p. 1093.
Treatment of Arthrosis Deformans with Combined Injections of Desoxycorticosterone Acetate and Ascorbic Acid. J. Becker and T. Franke.—p. 1094.
Enzymes to Combat Helminthic Infestation. H. Weise.—p. 1096.
Cobalt in Therapy of Anemia. G. Baumhoff.—p. 1105.

Penicillin in Treatment of Scarlet Fever.—Lasch reviews observations on 270 scarlet fever patients who were treated between January 1946 and March 1950. The chief aim was to ascertain the efficacy of penicillin therapy. The patients treated during 1946 and 1947 received no penicillin. In 1948 the supply of penicillin was still inadequate, and only patients with severe forms of scarlet fever were treated with it. During the first six months of 1949, alternate patients were treated with penicillin, and after that all patients were given penicillin. In all, 134 patients were treated with penicillin and 136 served as controls. Penicillin therapy transformed scarlet fever into a mild disease. The incidence of suppurating complications, such as otitis, polyarthritis, acute, diffuse glomerulonephritis and septic jaundice was greatly reduced. Myocarditis and nephritis were not prevented, although they were generally mild. The total dose of penicillin was usually from 1,000,000 to 2,000,000 units. Penicillin therapy was occasionally followed by a relapse, suggesting that the development of immunity was inadequate. In spite of these disadvantages, the author feels that penicillin should be given routinely to patients with scarlet fever, because with isolation of the patient and with proper control examinations of pharyngeal smears, these disadvantages can be largely avoided. Penicillin therapy insures rapid clinical cure and prevents serious complications. If complications do develop, they can be controlled with higher dosage. The rapid defervescence and clinical cure quickly makes patients convalescent and reduces the work of the nursing personnel.

Streptomycin Therapy in Vertebral Tuberculosis.—In the 10 cases of vertebral tuberculosis treated by Haizmann and Brändle, there were present extensive gravitation abscesses and profusely discharging fistular openings. The general condition and the appetite were extremely poor. The blood sedimentation rates were greatly accelerated. The temperatures were those characteristic of a septic process. Neither sulfonamide nor penicillin therapy had proved effective. Thoracic vertebrae were involved in five, the lumbar vertebrae in four and the ileosacral joint in one. Streptomycin was given twice daily in individual doses of 250 mg. The daily dose was increased to 1 Gm. in exceptional cases only. The total dose of streptomycin varied between 38 and 86 Gm. The effect of the treatment bordered on the miraculous. In nine of the cases the fistulas closed completely in three months and the secretion had stopped even before that. There was no recurrence after streptomycin therapy was discontinued. The fever subsided, and the sedimentation rate became normal. The weight and the general condition improved. Roentgenoscopy revealed improvement corresponding to the clinical betterment. This report must be regarded as preliminary. Its purpose was to call attention to the life-saving effect of streptomycin, which has never been equalled by any other therapeutic substance.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

94:2445-2516 (Aug. 26) 1950. Partial Index

Cardiac Insufficiency After Childbirth. G. A. Lindeboom.—p. 2453.
*Increased Sensitivity for Opiates and Barbiturates in Anoxia. L. Meyler.—p. 2467.
Danger of Reactivation of Pulmonary Tuberculosis by Large Doses of Vitamin D_2 (Calciferol). L. J. Jongmans, P. J. L. Hopmans, H. J. Kars and H. Michgelsen.—p. 2470.

Increased Sensitivity to Opiates and Barbiturates in Anoxia.—Meyler points out that textbooks usually warn against the use of morphine in attacks of bronchial asthma. He cites a man with bronchial asthma in whom administration of a barbiturate and of morphine was followed by deep coma. In a woman with pulmonary edema, morphine injection was followed by respiratory arrest and death. Increased sensitivity to opiates and barbiturates has been observed in patients with anemia, bronchiolitis and kyphoscoliosis. Such increased sensitivity is likely to exist wherever there are disorders which produce oxygen deficiency, accompanied by a depressive effect of an excess of carbon dioxide in the blood on the respiratory center. Nikethamide or other analeptics may counteract the narcotic effect in such cases.

94:2517-2584 (Sept. 2) 1950. Partial Index

Influence of Adrenocorticotropic Hormone (ACTH) on Muscular Performance of Hypophysectomized Rats. J. W. R. Everse and G. A. Overbeek.—p. 2523.
*Adrenocorticotropic Hormone and Carbohydrate Metabolism. G. A. Overbeck.—p. 2526.
Fixation of Biopsies, Punctates and Surgical Specimens for Histopathological Examination. P. H. Hartz.—p. 2527.

Pituitary Adrenocorticotropic Hormone and Carbohydrate Metabolism.—According to Overbeek, a number of investigators reported increase in the sugar and ketone contents of blood following administration of pituitary adrenocorticotropic hormone He studied the effect of this hormone on various species of animals including dogs rabbits and rats These experiments and consideration of the action mechanism of pituitary adrenocorticotropic hormone convinced him that the danger of producing real diabetes during treatment with this hormone is slight *However, if a patient has a mild form* of diabetes, then there exists the possibility that the diabetes will become severer

Nordisk Medicin, Stockholm

44:1301-1334 (Aug 18) 1950 Partial Index

Therapeutic Injuries in Collapse Treatment of Pulmonary Tuberculosis and Their Prevention G Birath p 1301
Laryngeal Swabbing and Gastric Lavage Comparison of Methods in Determination of Tubercle Bacilli J Lundar —p 1306
Eye Complications After Calmette Vaccination E Frandsen —p 1307
Combined Streptomycin and Streptokinase Treatment in Tuberculous Meningitis *P Hedlung, I Holme, A Lichtenstein* and C Lingen —p 1310
Paraminosalicylic Acid and Acid Base Equilibrium O Lindahl —p 1313
*Chloramphenicol Therapy in Typhoid O Gabinus —p 1317
Degeneration of Lumbar Disk H I Alvik —p 1318
Artificial Pneumothorax in Older Patients L Ehrner —p 1321
Calmette Vaccination with Remarkable Course in Newborn with Fat Necroses G von Sydow —p 1324

Chloramphenicol Therapy in Typhoid.—Gabinus reports that treatment with chloramphenicol gave good results in 12 cases of typhoid In 11 cases the temperature was normal after three and a half days and in one case after five days Mild recurrences were seen in five cases No side effects of the treatment were observed No patient became a bacillary carrier To prevent recurrence, the treatment should be continued for about two weeks, with vaccine therapy as soon as possible after the drop in temperature

44:1335-1378 (Aug 25) 1950 Partial Index

Sacral Anesthesia with Xylocaine Experiences in Surgical Clinic in Lund A Bauer —p 1341
Thyroid Medication in Celiac Disease O Elgenmark —p 1343
Subacute Bacterial Endocarditis Due to Staphylococci J Bøe —p 1350
*Separation of Upper Femoral Epiphysis P Sønder and A Knudsen —p 1351
Construction of Artificial Vagina and Uterovaginal Anastomosis A Bertelsen —p 1353

Separation of Upper Femoral Epiphysis.—Sønder and Knudsen followed up 19 patients with separation of the upper femoral epiphysis after an observation period of from three to 26 years, 13 were observed for 10 years or more The treatment was predominantly conservative, with average duration of a year No definite relation was demonstrable between subjective results and objective findings In eight patients, the subjective results were excellent, in seven, satisfactory, and all 15 were fully able to work Results were poor in 4 patients The authors do not consider the figures final Even after a long observation period, the patients were still young the oldest being 45, and after another 10 years the arthrosis present in the hip of nearly all the patients will probably become more troublesome Treatment that lasts on an average of one year is unsuitable for young people There is every reason to seek new ways of treatment of separation of the upper femoral epiphysis During the last year, active therapy in the form of drilling of the epiphysis or nail fixation has been tried with promising results, but the observation period is not yet long enough for a final evaluation

Paris Médical

40:333 352 (June 24) 1950

*Treatment of Addison's Disease with Streptomycin Guy Laroche and J Tremolieres —p 333
Diabetes Mellitus Associated with Acromegaly Three Personal Observations J Decourt, P Berthaux and J Civatte —p 337
*Postmenopausal Basedowian Syndrome Cure Obtained with Estrus Producing Compounds, Changes Observed in Extracellular Fluids. R Cachera, M Lamotte and N Masse —p 347

Streptomycin in Addison's Disease—Guy-Laroche and Tremolieres treated *four patients with Addison's disease with* streptomycin. One patient, a man aged 47, had Addison's disease of one month's duration, associated with pulmonary tuberculosis with caseating lesions He had a severe episode of adrenal insufficiency that was resistant to desoxycorticosterone acetate and cortin therapy The adrenal insufficiency was controlled by daily administration of 1 5 Gm of streptomycin The effect of the drug on the pulmonary tuberculosis was highly satisfactory Follow up of the patient showed that for more than one year he did not receive desoxycorticosterone acetate but was able to work The eosinophil count was normal *There was still some hypersensitivity to insulin and a* low 17-ketosteroid level (1 mg per 24 hours) Streptomycin was ineffective in the three patients with mild Addison's disease of one year's duration, without a progressive pulmonary tuberculosis There was no improvement in the clinical picture, and functional tests remained unchanged The dosage of desoxycorticosterone acetate and of cortin could not be reduced Streptomycin caused a mild attack of adrenal insufficiency in one of these three patients and caused an increase in the nitrogen in the urine of all four patients during the first nine days of treatment But this loss of nitrogen was of metabolic and not of clinical importance and did not contraindicate the use of streptomycin These results do not justify streptomycin treatment of Addison's disease in the absence of a progressive tuberculous process Streptomycin is indicated in cases with progressive tuberculous process, pulmonary or any other, if associated with fever or when such a process is suspected because of increased *blood* sedimentation rate and *hyper*globulinemia

Estrus-Producing Compounds in Postmenopausal Syndrome Resembling Toxic Diffuse Goiter—Cachera and co workers report a woman aged 62 in whom menopause had occurred 13 years previously For the preceding six months she had had palpitation, dyspnea on exertion, insomnia, thermophobia, loss of weight and edematous exophthalmos Polydipsia and nocturnal polyuria persisted for several weeks but disappeared spontaneously The thyroid was normal on roentgenologic examination Complete recovery resulted within six months from 28 intramuscular injections of 5 mg of estradiol benzoate followed by three courses of 15 mg of dienestrol given by mouth daily for 20 days Studies of extracellular fluids before treatment showed an increase in fluids similar to that observed in the common types of hyperthyroidism Treatment with massive doses of estrus-producing compounds induced a progressive diminution in the extracellular fluids Within the first three months of treatment, the amount of these fluids was reduced from 14 250 to 12 180 cc, while the body weight of the patient increased simultaneously by 4 4 Kg (10 pounds) The extracellular fluids were restored to normal simultaneously with the disappearance of the symptoms of toxic diffuse goiter The effect of the estrus producing compounds on the extracellular fluids in the patient was opposite to that exerted by these compounds in normal women The effect, therefore, was one of suppression of the hyperthyroidism itself

Policlinico (Pract. Sect.), Rome

57:877-896 (July 3) 1950 Partial Index

*Health of Blood Donors After Repeated Blood Donations E Pulitano and M Gaetano —p 877

Blood Donors.—Pulitano and Gaetano report observations on 91 professional blood donors These belonged to one of the four groups of the AB, A, B or O types and were either Rh positive or Rh negative They were all voluntary donors in good general health, of normal body weight and with normal arterial tension Fifty-two donors had been giving blood for several years, and 39 had been giving blood during the last year The donors were between 30 and 60 years old, with the exception of two men of 65 years The withdrawal of blood amounted to from 200 to 400 cc The lapse of time between two consecutive withdrawals was two to three months The number of blood donations varied between 30 and 207 in the group of long term donors, and between 10 and 29 donations in the recent group The determinations were made two or three months after the last blood withdrawal Repeated blood withdrawals *did not appear to have unfavorable effects for the* donors Blood donation does not influence the body weight, the general health, arterial blood pressure or the morphology of the blood In rare instances of donors who had given a large number of blood donations, it was found that either the erythrocytes were smaller than normal, or that there was moderate hyperglobulia or moderate hypochromic anemia. The proteins in the blood of the long term donors were diminished. The sedimentation rate of the erythrocytes was increased. Blood donors should be given a diet rich in proteins and iron as a preventive measure against anemia.

Revista Clinica de São Paulo

26:71-106 (May-June) 1950. Partial Index

*Streptococcus Sanguis White in Subacute Bacterial Endocarditis. D. P. de Carvalho Lima.—p. 71.

Streptococus Sanguis in Subacute Bacterial Endocarditis.—De Carvalho Lima studied strains of streptococci that he had isolated from the blood of two patients with subacute bacterial endocarditis and three control strains that had already been classified as Streptococcus sanguis. They corresponded to the serologic types 1, 2 and 3. Streptococcus sanguis is the type of streptococcus most frequently found in the blood of patients with subacute bacterial endocarditis. This type of bacterial endocarditis can be controlled by large doses of penicillin administered for a considerable period of time. The Streptococcus sanguis can be differentiated from other streptococci of the viridans group by the fact that it grows in a medium containing 40 per cent bile, that it hydrolyzes arginine, produces dextran in a broth containing 5 per cent saccharose and does not reduce litmus milk. It is differentiated from enterococci by the fact that it does not tolerate a temperature of 60 C. for 30 minutes and will not grow in a medium containing 6.5 per cent of sodium chloride. Blood for cultures should be taken before administration of penicillin.

Schweizerische medizinische Wochenschrift, Basel

80:873-928 (Aug. 26) 1950. Partial Index

Some Remarks on Technic of Extrapleural Pneumolysis. F. Suter.—p. 874.
Therapy of Bronchiectasis Associated with Pulmonary Tuberculosis. H. Good.—p. 876.
Successful Decortication of Lung in Tuberculosis. W. Brunner.—p. 879.
Prophylaxis and Therapy of Postoperative Atelectasis of Lungs. K. Mülly.—p. 883.
*Treatment of Advanced Mammary Cancer with Male Sex Hormone. P. Ricklin.—p. 902.

Male Sex Hormone in Advanced Mammary Cancer.—Ricklin treated with testosterone proprionate 12 women with advanced mammary cancer. Some of these had a tumor which was inoperable and others presented extensive skeletal and soft tissue metastases The patients were given 300 mg. of the drug per week, with a total dose of 3,000 to 7,000 mg. One patient with massive metastases of lungs and liver died on the sixteenth day of treatment. Seven patients died within five to 17 months after institution of the testosterone propionate therapy. The four living patients were treated for 4, 6, 7 and 12 months, respectively. Five of the 11 patients showed objective improvement, which was maintained on the average for eight months. It consisted of regression of the primary tumor and regional metastases in the lymph nodes, calcification of osteolytic skeletal metastases or rapid consolidation of pathological fractures. There was no improvement in advanced metastases of the liver and lungs. Subjective improvement in the general condition and relief of pain for at least two to three months was observed in six patients. Favorable experiences by other authors with bilateral ovariectomy and hormone therapy in younger patients was confirmed by the authors in one patient aged 42. Testosterone propionate does not cure mammary cancer but is a valuable palliative.

80:929-952 (Sept. 2) 1950

*Complications of Q Fever. S. Moeschlin and B. J. Koszewski.—p. 929.
Effect of Hypophysis Implantation on Lesions of Bone Marrow with Agranulocytosis. K. Fellinger, F. Kaindl and E. Reimer.—p. 931.
*Administration of 2,3-Dimercaptopropanol (BAL) in Diffuse Impairment of Liver Parenchyma. T. Janovics and J. Takó.—p. 933.

Complications of Q-Fever.—Moeschlin and Koszewski report on 50 patients with clinical diagnosis of Q-fever established by serum tests. Nine of the 50 patients had extrapulmonary complications. Five had thrombophlebitis with pulmonary embolism, three had epididymitis, one had encephalitis and one had pancreatitis. Only one of the nine patients with meningeal symptoms had an increase of cells in the cerebrospinal fluid. The extrapulmonary complications occurred after remission of the pulmonary symptoms, between the fourteenth and twenty-third day in the cases with thrombophlebitis, on the eighteenth day in the case of encephalitis and between the twenty-sixth and forty-third day in the cases of epididymitis and pancreatitis. These complications are probably specific rickettsial disorders. Five weeks after the onset of Q-fever, urine from a patient with epididymitis, when inoculated into guinea pigs, proved indirectly the presence of rickettsia by the development of a positive complement reaction in the blood of the inoculated animals. The relatively high incidence of complications in patients with severe Q-fever makes early discharge from the hospital inadvisable. Patients should not be permitted to resume their occupations earlier than three to four weeks after complete defervescence.

Dimercaprol (BAL) in Diffuse Impairment of Liver Parenchyma.—Rapid clinical improvement obtained with dimercaprol (BAL) in four patients with hepatitis occurring during treatment with neoarsphenamine induced Janovics and Takó to treat 38 of 63 patients with acute diffuse liver disturbance with the drug. In the course of five days, 1,100 Gm. were administered, 300 Gm. on the first and second days, 200 Gm. on the third and fourth days and 100 Gm. on the fifth day. Treatment with dimercaprol was instituted when bed rest, Morisson diet, administration of vitamin B, adrenal cortex extract, insulin, choline derivatives and supply of fluids proved ineffective. Diminution in the size of the liver was observed the day after treatment with dimercaprol was discontinued. Liver tenderness subsided, and bile could be aspirated with the duodenal tube in all the patients. The bilirubin content in the urine was minimal, the urobilin was increased. The iodine reaction of bilirubin in the urine was negative, when the bilirubin content of the serum still varied between 6 and 8 mg. per 100 cc. The improvement in the clinical picture and in the laboratory observations was more pronounced in patients who were treated with dimercaprol than in those to whom it was not given. Results of examination of 16 patients three months after and of six patients six months after dimercaprol therapy was discontinued were highly satisfactory. Dimercaprol, similar to glutathione and a substitute for this reduced substance, activates the enzymes containing the sulfhydryl group by keeping the sulfhydril group in a reduced stage. Dimercaprol also transmits its own sulfur atom to the tissues. It thus plays an active part in the production of enzymes.

Semaine des Hôpitaux de Paris

26:3669-3718 (Sept. 22) 1950. Partial Index

Introduction to Classification of Diseases of the Blood. A. Tzanck.—p. 3669.
Statistical Study of 459 Cases of Hemorrhagic Syndromes. A. Tzanck and J. P. Soulier.—p. 3673.
*Hemorrhagic Syndrome of Acute Leukemias. A. Tzanck, J. P. Soulier and J. Dausset.—p. 3676.
*"In Vitro" Test of Tolerance to Heparin in Hemorrhagic Syndromes and in Thromboses. J. P. Soulier and Le Bolloch.—p. 3702.

Acute Leukemia.—Tzanck and co-workers report on 60 patients with acute leukemia. Abnormal bleeding occurred in every patient in the course of the disease, but cutaneous and mucosal hemorrhages were predominant. Petechiae were present in 57 patients, ecchymoses in 32 and bleeding from the gums and epistaxis in 31. Gingival bleeding seems to be associated with stomatosis, an early manifestation of acute myeloblastic leukemia and consequently occurs more frequently in adults. Cerebromeningeal hemorrhages occurred in six patients treated with 4-aminopteroylglutamic acid (aminopterin) and is to be considered a serious complication of this method of treatment. Biologic studies of blood constituents suggested a severe disturbance of the three stages of the clotting process. The pronounced prolongation of the bleeding time and the changed capillary fragility indicated a disturbance of the first or capillary stage. Thrombopenia with total loss of retractability of the clot demonstrated a disturbance of the second stage. Mild hypoprothrombinemia and the disturbance of the prothrombin consumption are characteristic of the impairment of the third stage. Studies of the tolerance of the leukemic plasma to heparin and to protamine in vitro and of the protamine index of the amount of protamine required for coagulation of heparinized blood demonstrated that the blood of patients with acute leukemia does not contain excessive amounts of a heparin-like substance and showed that thrombopenia is responsible for the disturbance. This thrombopenia is linked with inhibition of the megakaryocytes. Hemostasis in acute leukemia may be obtained, at least temporarily, by exchange transfusions and intravenous administration of protamine sulfate combined with local hemostasis by means of gelatin tampons and 500 units of thrombin.

In Vitro Test of Heparin Tolerance.—Soulier and Le Bolloch performed a modified Waugh-Rudick test for increased coagulability of the blood on 146 patients with various disturbances of the clotting process and on 60 control persons. Nine patients had hypoprothrombinemia, eight had thrombopenia, seven were hemophiliacs and two had fibrinopenia. Additional patients had a simultaneous deficiency of several clotting factors, and others had hemorrhagic syndromes of distinctly vascular origin. Twenty-two patients had thrombosis. The authors believe that the in vitro test of tolerance to heparin is superior to other tests by which the total coagulability of the blood may be measured, such as Howell's clotting time test, Allen's protamine index and Takat's in vivo test of tolerance to heparin. Determination of the number of platelets, of the fibrinogen level or of the prothrombin level may be valuable but is not as useful as the heparin tolerance test, which conclusively determines decreased or increased coagulability. The isolated deficiency of one of the clotting factors does not prevent the occurrence of a thrombosis, even in the presence of a mild total hypercoagulability. The heparin tolerance test and the evaluation of one or the other of the deficient factors supplement one another. The determination of the prothrombin consumption in the course of the clotting process aids in the evaluation of the first stage of this process and protects against the variations of the fibrinogen, but it does not provide any information about increased coagulability and is therefore of no aid in the diagnosis of thrombosis. The tolerance test is an aid to diagnosis of hemorrhagic diathesis by detection or confirmation of a decreased coagulability and of thrombosis by demonstration of an increased coagulability. It is a guide to treatment with anticoagulants because it facilitates the choice of the drug and of its effective dosage.

Ugeskrift for Laeger, Copenhagen

112:1205-1238 (Aug. 31) 1950

*Anticoagulants in Treatment of Coronary Occlusion. C. Holten.—p. 1205.
Preliminary Experiences with Anticoagulants in Acute Myocardial Infarction. K. H. Olesen.—p. 1212.
Acute Infectious Lymphocytosis. H. Glastrup.—p. 1214.
Taking of Blood for Potassium Determination. E. Ryssing.—p. 1218.
Potassium Treatment of Diarrhea. C. Hansted and T. Hilden.—p. *1222.*
Delayed Thrombopenic Hemorrhagic Diathesis with Cerebral Hemorrhage After Sanocrysin Treatment. N. S. C. Heilskov.—p. 1224.
BAL Treatment of Hematological Complications After Sanocrysin. H. Brodthagen.—p. 1227.

Anticoagulants in Treatment of Coronary Occlusion.—Holten states that treatment of coronary occlusion with anticoagulants reduces considerably the mortality in this disease. Of 430 patients with coronary occlusion treated in various medical departments in Denmark from June 1948 to June 1950, 174 admitted on even dates were given heparin for 24 hours and bishydroxydicoumarin (dicumarol®) for three weeks and 250 admitted on odd dates received no anticoagulants. The bishydroxydicoumarin dosage was based on frequent determinations of the prothrombin time, the aim being a reduction to about 30 per cent of the normal. The treatment was otherwise the same for the two groups. Of the first group, 39 (22.5 per cent) died, of the second, 92 (36 per cent) died. The improvement in prognosis was most pronounced in the age group 60-69, in which the mortality was 17 per cent among the patients given anticoagulants as against 43 per cent among those not given anticoagulants. During anticoagulant treatment, thromboembolic complications occurred in seven patients (4 per cent) and in 36 patients (14 per cent) in the control group in the same period. The number of deaths in the first week of treatment was 11.5 per cent in the first group and 19.5 per cent in the second. An important part of the effect of the treatment is believed to depend on prevention of growth of the thrombus. The anticoagulant treatment seemed significantly to improve the prognosis in patients who had had earlier attacks of coronary occlusion; of 25 such patients treated, five died, while of the 32 untreated, 15 died.

Wiener klinische Wochenschrift, Vienna

62:453-468 (June 30) 1950

Water Metabolism and Mineral Salt Excretion in Patients with Hepatic Diseases and Effects of Desoxycorticosterone Acetate. L. Benda and E. Rissel.—p. 456.
*Ligature of Superior Vena Cava. E. Strahberger.—p. 462.
Roentgen Picture of Phlegmon of Small Intestine. P. Lutz.—p. 466.

Ligature of Superior Vena Cava.—Strahberger believes that ligature of the superior vena cava, provided that it does not include the vena azygos, is not a life-threatening procedure and may be employed in the course of surgical intervention for bronchial carcinoma invading the vein. His opinion is based on postmortem observations of cases of complete occlusion of the superior vena cava cited in the literature. Experiments in dogs demonstrated the absence of stasis after the ligature of the superior vena cava above the vena azygos. The animals were alert and fresh a few days after the operation. Neither history nor necropsy revealed the presence of stasis in eight persons who had died from bronchial carcinoma that occluded the superior vena cava above the vena azygos. A slight swelling of the neck and face and a mild headache may develop, but these subside with the development of collateral circulation. Enlarged cutaneous veins will not be observed over the thorax and abdominal wall. Occlusion of both the superior vena cava and the vena azygos may lead to severe life-threatening phenomena. Death may result rapidly from stasis in the vital organs, particularly the brain, and from increasing anoxemia. Pronounced venous congestion over the chest and the abdomen is characteristic of a *simultaneous occlusion of the superior vena cava* and vena azygos. Anastomosis after resection of a stenosed portion of the superior vena cava is not feasible, because it cannot be done without tension. Complicated methods of anastomosis are contraindicated in radical intervention for bronchial carcinoma. Resection and ligature of the superior vena cava above the vena azygos may be carried out without great hazard to the patient, provided the general condition and heart function are adequate and provided the vena azygos is normal and is not occluded. Section of superior vena cava and vena azygos will be fatal in the great majority of cases and is, therefore, not permissible.

62:485-500 (July 14) 1950

*Hypoproteinemia in Pernicious Anemia. A. Schneiderbaur.—p. 489.
Addison's Disease and Appendicitis. G. Dettre and Z. Méra.—p. 492.
History of Vienna Medical School (Personal Memories). N. Jagić.—p. 494.
Question of Sciatica or Avulsion of Transverse Process: Contribution to Diagnosis of Sport Injuries of Lumbar Portion of Spine. H. Pototschnig.—p. 496.

Hypoproteinemia in Pernicious Anemia.—Schneiderbaur reports on 37 patients with pernicious anemia, 24 of whom had an abnormal serum protein level. There was an abnormal decrease in the total amount of protein in the blood and in the albumin content. This decrease was severe in 16 patients and milder in eight. The hypoproteinemia was more pronounced in patients with severer pernicious anemia and particularly in those of advanced age. The hypoalbuminemia improved simultaneously with the increase in number of erythrocytes and hemoglobin content following liver therapy. Some of the patients still had a mild hypoalbuminemia, although the red blood cell picture had been restored to normal. Additional exogenous protein supply through blood transfusion appeared indispensable for the relief of hypoalbuminemia. Relation between blood proteins and erythrocytes was demonstrated by the observation of resistance of patients with pernicious anemia to liver therapy in Vienna and elsewhere in Europe during the postwar starvation period of 1945-1946 and of optimal effects of liver therapy with respect to efficiency, duration and prevention of recurrences when combined with blood transfusion. Hypoproteinemia (hypoalbuminemia) occurring under normal nutritional conditions in patients with pernicious anemia is to be considered as endogenous and probably due to disturbance of liver function but may be partly also exogenous if a relative alimentary protein deficiency is present.

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Physicians Federal Income Tax Guide and Simplified Accounting Record for the Preparation of 1950 Returns and 1951 Estimates. By Hugh J. Campbell and James B. Liberman. 1951 edition. Paper. $2.50. Pp. 127. Doniger & Raughley, Inc., Great Neck, New York, 1950.

With the approach of the federal income tax return season, physicians will find of interest and benefit the contents of this brochure, which undertakes to state in an understandable way the requirements of the federal law as they apply to physicians. There is a detailed discussion of the deductions a physician may claim, including a two column statement concerning the deductibility of entertainment expenses. While the reader may be a bit skeptical of the advice given on page 37, paragraph 81, that expenditures for funeral wreaths are deductible as "entertainment expenses," the authors do emphasize the requirement that, to be deductible, entertainment expenses must have been incurred for business purposes and that adequate proof must exist not only of the expenditures but of the purpose. That is an important admonition, and physicians will proceed wisely if they keep it in mind in completing their income tax returns.

World Surgery 1950: Technics, Improvisations and Procedures Gathered from the Surgical Literature of the World. By Stephan A. Zieman, M.A., M.D., F.A.C.S. Cloth. $6. Pp. 177, with 53 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1950.

This volume attempts to survey and present material from the world literature, and emphasizes the newer concepts in surgery. The voluminous material selected shows good organization and lucid presentation. The contents include gastrointestinal surgery, cardiovascular-respiratory surgery, gynecology, obstetrics, orthopedics, genitourinary surgery, neurosurgery and psychosurgery, ophthalmology and otolaryngology and head, neck and miscellaneous surgery. Under the last named heading are included anesthesiology, radiology, preoperative and postoperative care, blood substitutes and antibiotics. At the end of the work is an index of authors and of subjects and the list of journals from which these articles have been abstracted. This book can be recommended as a survey of some of the world surgical literature.

Handbook of Medical Protozoology for Medical Men, Parasitologists and Zoologists. By Cecil A. Hoare, D.Sc., Protozoologist to the Wellcome Laboratories of Tropical Medicine, London. Cloth. $7. Pp. 334, with 43 illustrations. The Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1950.

This book is by an outstanding, well known protozoologist, and factually it is especially useful. Unfortunately, there is no bibliography associated with the text or as a source of reference material at the end of the book, although the author has obviously drawn widely from the literature for his presentation. His sections on the amebas and the trypanosomes are especially well done, because for a long time the author has been closely affiliated with these fields. There is a short section on each of the parasites, dealing briefly with the clinical aspects and the course of the infections. Admittedly, the amount of clinical material would be inadequate for a clinician, but the author realizes this and so states in his introduction. This book is a valuable addition to the subject of medical protozoology.

Human Sterilization: Techniques of Permanent Conception Control. By Robert Latou Dickinson, M.D., and Clarence James Gamble, M.D. Paper. 25 cents. Pp. 40, with 31 illustrations. Dr. C. J. Gamble, 255 Adams St., Milton, Mass.; Human Betterment League of North Carolina, Box 3036 Winston-Salem, 1950.

This monograph attempts to present, in a semiphilosophical way, the subject of human sterilization. The subject has been oversimplified. The statement that "male sterilization is readily done in the surgeon's office" is not acceptable. Although this might have been accomplished many times, it is surely not to be encouraged or recommended. This subject is timely and has a specific place in medical literature. Unfortunately, the illustrations do not show up to advantage on the poor quality of paper used. Space should have been devoted to complications and their treatments. A rather extensive author index is included.

Clinical Applications of Suggestion and Hypnosis. By William T. Heron, M.A., Ph.D., Professor of Psychology, University of Minnesota, Minneapolis. Cloth. $3. Pp. 116. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This is a short summary of present knowledge concerning hypnosis and a presentation of methods for its professional use by physicians, dentists and clinical psychologists. The author emphasizes that in use of hypnosis the professional man must think of himself in the role of a teacher guiding the patient toward objectives which the patient realizes are to his best interest. Methods for the induction of the hynotic state are outlined, and mention is made of the use of posthypnotic suggestion and group hypnosis. Precautions in the use of the method are outlined. The author recommends that hypnosis be used to a much greater extent in the clinical handling of patients.

It is extremely doubtful whether physicians, dentists or clinical psychologists would be justified in undertaking the use of the hypnotic method with their patients solely on the basis of the information provided here. A much more thorough study of the subject, choice of methods and the mental mechanisms involved would appear necessary for effective clinical use.

Researches on the Measurement of Human Performance. By N. H. Mackworth. Medical Research Council Special Report Series No. 268. Paper. 4s. Pp. 156, with 60 illustrations. His Majesty's Stationery Office, York House, Kingsway, London, W.C.2, 1950.

This is an excellent publication. It cannot be recommended too highly for the purpose it intends to serve. The subject matter is divided into two parts. The first part deals with visual and auditory vigilance tests, and results are presented showing that one can avoid the decrease in efficiency, which occurs usually after 30 minutes, by providing shorter periods of duty or by informing the persons on watch regarding their performance. The second part deals with tests for determining the effect of high atmospheric temperatures and of exposure to nonlethal war gases on the performance over long periods of sensory, intellectual and muscular work. For example, results are presented showing that deterioration of performance occurs noticeably at "effective temperatures" above from 83 F. to 87.5 F., that is, at the dry bulb/wet bulb readings of 90/80 F. and 95/85 F. with an air movement of 100 feet per minute. In view of the information provided, the publication should be in every library not restricted to fiction.

Methods of Tissue Culture. By Raymond C. Parker, Ph.D., Associate Professor of Experimental Cytology, School of Hygiene, University of Toronto, Toronto. With a chapter by Joseph F. Morgan, Ph.D. Second edition. Cloth. $7.50. Pp. 294, with 113 illustrations. Paul B. Hoeber, Inc. (Medical Book Department of Harper & Brothers), 49 E. 33rd St., New York 16, 1950.

The first edition of this book was published in 1938 and incorporated the technics employed by the late Dr. Alexis Carrel. The new edition retains many of the original sections, although these have been extended by the inclusion of procedures which are presently generally accepted. The subject is concisely and clearly presented, and details of procedures and formulas are adequate. The text is well illustrated, and more than 200 references are cited.

The 1949 Year Book of Endocrinology, Metabolism and Nutrition (December 1948 - January 1949). Endocrinology. Edited by Willard O. Thompson, M D., Clinical Professor of Medicine, University of Illinois College of Medicine, Chicago. Metabolism and Nutrition. Edited by Tom D. Spies, M D., Chairman, Department of Nutrition and Metabolism, Northwestern University School of Medicine, Chicago. Cloth. $1.75. Pp. 550, with 101 illustrations. The Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1950.

This is an attempt to abstract the important literature of the year on endocrinology, metabolism and nutrition, with editorial comment on the findings. In reviewing the editor's comments on pituitary adrenocorticotropic hormone (ACTH) and cortisone, it is interesting to note that an excessive secretion of potassium is reported as producing dangerously low levels of potassium concentration in body fluids. Also, the categorical statement is made that patients treated with these agents have shown all manifestations of Cushing's syndrome. To date, the thin skin, the ecchymoses and polycythemia of Cushing's syndrome have not been reported following pituitary adrenocorticotropic hormone or cortisone therapy. Whether these additional observations will be encountered following administration of these agents over a longer period remains to be seen. In discussing pulmonary tuberculosis, the statement is made that ". . . production of tubercle bacilli appears not to be affected, and if the ACTH administration is discontinued, a severe relapse occurs." This is probably another error in the publication. In all likelihood, reproduction of tubercle bacilli was meant in this case.

Selye's theory of the general adaptation syndrome and stress seems inadequately interpreted, since the editor apparently disregards the exhaustion phase occurring in chronic stress and does not suggest that certain disease states may ensue either from exhaustion or from overreaction of the defense mechanism to stress. Of interest in the metabolic studies outlined were Jorpes' recrystallization of insulin with reduction of insulin sensitivity in patients with allergy to the hormone and the successful use of protamine zinc insulin injection and cholesterol implants by Vargas. The review of sodium chloride restriction in hypertensive vascular disease and the presentation of low sodium diets is of timely interest. The difficulties of assembling a book of this type are manifest, but editorial comments should be reviewed with care and rectitude.

The Sulphonamides. By F. Hawking, M D., and J. Stewart Lawrence, M D., M R.C.P., Physician-in-Charge of the Walkden Clinic, Manchester. Cloth 42s Pp 389, with 46 illustrations H. K Lewis & Co., Ltd., 136 Gower St., London, W.C.1; Grune & Stratton, Inc., 381 Fourth Ave, New York 16, 1950.

There have been many books and monographs written about the sulfonamides, but in recent years the popularity of the antibiotics has caused a lack of interest in these older chemotherapeutic agents. Nevertheless, the sulfonamides are still valuable drugs and have a rightful place in medicine. Drs. Hawking and Lawrence have done an excellent job in reevaluating the sulfonamide compounds, and their book is one of the most complete yet published. The introduction contains a brief history of the discovery and development of sulfonamides. The principal chemical reactions of these compounds are briefly presented, and the chemical formula and physical and chemical properties of each of the available drugs is given. Most valuable is the list of 236 trade names for sulfonamide drugs, for which the common or chemical name is given. The nomenclature problem, especially in Europe, is exceedingly confusing, there being 64 different trade names for sulfanilamide alone.

The mechanism of action of the sulfonamides is adequately discussed, and the antibacterial spectrum of the various derivatives is presented. The problem of bacterial resistance is also discussed. The material on pharmacology, mode of administration and principles governing the choice of compounds for specific injections is well written. Not all American workers will agree with some of the recommendations, but the discussions are adequate and convincing. The authors also present their concept of when sulfonamides should be preferred to penicillin and vice versa. A major portion of the book concerns the use of various sulfonamides in a variety of infections. Although it is obvious that the British use more sulfonamides in proportion to the antibiotics than do their American colleagues, the documentation and objective reasoning for each of the recommendations made is impressive and convincing.

The last portion of the book concerns toxicity and sensitization to the sulfonamides. It is apparent that the British have seen less toxicity to the sulfonamides than have American physicians. This may reflect a more judicious use of these compounds on their part and an alertness to the early signs of toxicity, with consequent prevention of some of the more serious sequelae reported in the American literature. The authors, however, evaluate critically the evidence regarding clinical toxicity, and their conclusions are well supported by this evidence. This book is obviously the most thorough and fundamental treatise on the sulfonamides yet published. It can be used profitably by physicians throughout the world and is of particular value to internists and pediatricians.

The Rhesus Danger: Its Medical, Moral and Legal Aspects. By R. N. C. McCurdy, M B., Ch B., D.P.H. Paper. 5s. Pp. 138. William Heinemann, Ltd., 99 Great Russell St., London, W.C.1, 1950.

The author of this book, himself a victim of Rh sensitization, which affected two of his children, has made a thorough study of the subject. This interesting monograph is the fruit of his labors. The book is written primarily for the information of patients confronted with the problem, but also can be read with profit by physicians. In the first part of the book, comprising 48 pages, a lucid description is given of mendelian inheritance, the blood groups, the discovery of the Rh factor, Rh sensitization and its effects and the present method of treatment of erythroblastosis fetalis. In this section are presented some interesting statistical estimates of the incidence of erythroblastosis fetalis. The author exaggerates somewhat the danger of cerebral sequelae in infants who survive, considering that recent observations show that such sequelae are rare among babies treated by exchange transfusion.

In the second section of the book, the author discusses the alternatives open to the luckless couple in whom the husband is homozygous Rh positive and the wife Rh negative and so strongly sensitized that every Rh-positive fetus will almost surely be stillborn. He discusses in turn the medical, moral and legal implications of contraception, sterilization, therapeutic abortion, adoption, artificial insemination from a donor and divorce. While no final conclusion concerning any of these solutions is possible at the present time, the author has succeeded in presenting an interesting account of these controversial matters.

There are remarkably few misstatements in the monograph, which can, therefore, be safely recommended as an introduction to the subject. This being a British publication, the CDE notations are used with the usual confusion between genotypes and phenotypes; for example, on page 20 the author states, "A person's red cells must contain three pairs of Rh genes. . . ." At times the author indulges in speculation, as when he suggests treating the semen of heterozygous husbands with anti-Rh serum in order to immobilize or kill the spermatozoa carrying the Rh-positive gene. Another fanciful suggestion is the idea of preparing an antibody against Rh antibodies, in order to neutralize the Rh antibodies and prevent their harmful effects. The monograph fills a real need, and its few slight imperfections will hardly interfere with its popularity.

Selective Partial Ablation of the Frontal Cortex: A Correlative Study of Its Effects on Human Psychotic Subjects. By The Columbia-Greystone Associates. Edited by Fred A. Mettler, M.D., Ph D. Problems of the Human Brain. Cloth. $10. Pp. 517, with 122 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33rd St., New York 16, 1949.

This is a well documented report of a thorough study of 24 cases of mental disease in which selective ablations of specific areas of the frontal cortex were carried out. This new selective operation is called topectomy by the authors. It consists of removal of a specific area of gray matter, in contrast to the standard form of prefrontal lobotomy, which consists of incisions into the anatomically less well differentiated white matter (leukotomy).

In addition to the 24 patients on whom topectomy was performed, 24 control patients were studied with equal thoroughness; in eight of these the standard leukotomy was performed.

The authors embarked on their new surgical approach in an effort to discover whether small and specific ablations of well circumscribed areas of the frontal cortex might have the same beneficial effects that leukotomy (the standard form of prefrontal lobotomy) does without the undesirable but unavoidable side effects of the extensive standard operation They also wished to discover which areas would have to be ablated to achieve these results Prior to this work, it was an open question whether the extent of the operation per se had anything to do with its effects (a not inconceivable possibility in view of the results of Lashley's work on animals) or whether interference with certain specific cortical systems was responsible for the desirable results If the latter were the case, then certainly it should be possible to minimize the undesirable side effects by narrowing the area operated on It was the wise decision of the authors to remove the much better defined cortical areas rather than the interwoven and anatomically far less differentiated fiber tracts of the white matter

Although the authors' series of cases was small, they nevertheless have produced convincing evidence that the beneficial effects of frontal lobe operation are not based on the total amount of frontal lobe tissue removed No correlation was found between the clinical result and the amount and weight of gray brain tissue removed On the contrary, desirable clinical results were found to be based on the removal of, or significant encroachment on, areas 9 and 10 as well as the small adjacent area 46 In the 13 of the 24 patients on whom topectomy was performed and in whom interruption of psychotic behavior resulted, one of these three areas had been removed wholly or in part Of those patients in whom one of these three areas had not been encroached on, none recovered Careful postoperative electroencephalographic study showed that of the 24 patients subjected to topectomy, 13 continued to show electroencephalographic abnormalities over the first 30 postoperative days, in nine cases this abnormality continued for six months after operation Epileptic seizures occurred in five of the 24 patients (one to nine seizures each) These figures suggest that these postoperative complications exceed those which occur in standard lobotomy This increase in cerebral dysrhythmia may be a drawback of the method unless formation of epileptogenic scars can be prevented by further advances in technic

Nevertheless, the important results that the authors have obtained with their method of localized cortical ablations will undoubtedly be a valuable incentive to improvement of the clinical results of lobotomy by more limited and circumscribed incisions into the white matter, and these efforts will be significantly aided by careful study of cortical ablations performed by the authors This book is an important landmark in the development of the surgical approach to the treatment of mental illness, and its perusal will be essential to all who perform or recommend psychosurgery

Physical Chemistry for Premedical Students By John Page Amsden Professor of Chemistry, Dartmouth College, Hanover, N H Second edition Cloth $4 25 Pp 317, with illustrations McGraw-Hill Book Company, Inc 330 W 42nd St, New York 18, Aldwych House, Aldwych, London W C 2 1950

This is a short textbook written especially for the busy premedical student It makes no claim to complete coverage of physical chemistry Many important subjects have been sacrificed in deference to an overloaded time table The development of some of the subjects included in the text has been curtailed for the same reason The important subject of thermodynamics, however has been added to the present edition The material for the most part is clearly presented In some instances, as in the definition of the order of a reaction, the phraseology appears awkward Clarity, in such cases, is usually restored by the judicious use of examples

The mathematical requirements for comprehension of the text are limited to a knowledge of quadratic equations and the use of logarithms, except in the few cases where calculus is essential Problems are presented at the end of each chapter The author's careful selection of subjects and the clarity of their presentation should insure the wide use of this textbook in premedical schools

The Mental Health Programs of the Forty-Eight States: A Report to the Governors' Conference Paper $4 Pp 377 The Council of State Governments, 1313 E 60th St, Chicago 37, 1950

This is a comprehensive and challenging report on the present status of mental health programs in the 48 states, with emphasis on mental hospital care The information was gathered by a special research staff by means of questionnaires and other information obtained from the offices of the governors of the 48 states and from state mental health and hospital authorities There are over 100 pages of detailed tabulations, describing organization, appropriation, costs, personnel, conditions of buildings and numerous other aspects of mental hospital care It is startling to find, for example, that the average annual expenditure for patients varies from a little over $400 a year in Tennessee to $1,100 in Wisconsin Many of these disparities cannot be explained by regional differences The report cites an estimated total of 326,000 additional mental hospital beds needed, as of Jan 1, 1950 Overcrowding and the need for additional personnel are stated to be the two most important problems in mental hospital care The report recognizes also that not enough emphasis is being placed on active treatment of patients after admission Recommendations made include increased state hospital space, more modern equipment, more and better personnel and the establishment of preventive programs, including mental health clinics outside of hospitals, child guidance clinics and follow-up clinics for those on leave from state hospitals The report does not discuss extensively the preventive aspects of mental health but states that "in this field very little is known" The need for research is very properly emphasized This is an excellent general review of the present status of mental health programs in this country and should prove of great value to all those concerned with mental health

A Guide to Psychiatric Books with a Suggested Basic Reading List Compiled by Karl A Menninger, M D, General Director of the Department of Education, The Menninger Foundation, Topeka Kansas With the Collaboration of George Devereux, Ph D, Lecturer in Anthropology, The Menninger School of Psychiatry and the Topeka Institute for Psychoanalysis, Topeka Kansas The Menninger Clinic Monograph Series No 7 Cloth $3 50 Pp 148 Grune & Stratton, Inc, 381 Fourth Ave, New York 16, 1950

The authors have compiled a comprehensive reading list of books on psychiatry to fill the need for a guide for teachers in psychiatry, and ancillary fields, in the planning and development of systems of education The authors note that the list is obviously too long for indiscriminate prescription by teachers in psychiatry and have increased its usefulness by starring of items in each category which appear of outstanding significance The preparation of the book itself and the selection of the starred items was carried out by consultation with many colleagues in the field of psychiatry and in allied fields of psychology sociology, anthropology, nursing and social work Books included are selected only from books published prior to 1949

The list is divided into two parts Part 1, a guide to psychiatric books, includes titles under basic disciplines of the field, titles in the various specialized fields of psychiatry, psychiatric therapies and preventive psychiatry and mental hygiene Part 2 is a suggested basic psychiatric reading list related to the several major groupings mentioned in part 1 Preparation of such a list seems long overdue Undoubtedly it will fill a long-felt need, particularly for persons engaged in planning programs of psychiatric education

Transactions of the American Goiter Association 1949 Annual Session May 26 27, 28, Hotel Loraine, Madison, Wisconsin Cloth $10 50 Pp 460, with illustrations Charles C Thomas Publisher, 301-327 E Lawrence Ave, Springfield, Ill, 1950

This volume contains the papers presented at the twenty-sixth annual meeting of the American Goiter Association A perusal of the contents reveals the increasing interest in the use of radioiodine as a method of both therapy and diagnosis One of the most important essays is on the direct estimation of the rate of thyroid hormone formation in man by the effect of the iodide ion on thyroid iodine utilization

Another interesting report concerned the use of intravenous anesthesia in basal metabolism determination A group of normal subjects as well as patients with certain disease states were tested by this procedure. Normal patients showed a slight drop in basal metabolic rate with this procedure, but this was not below normal range. Patients with severe hyperthyroidism showed little change in the metabolic rate under anesthesia and required larger doses of intravenous anesthetic than the normal patient. Patients with high metabolic rate due to various nervous states had a drop in basal metabolism to normal under anesthesia, thus indicating absence of hyperthyroidism. This method of determining basal metabolism may prove of value in the differential diagnosis of hyperthyroidism. The book as a whole represents a compilation of modern theory and practice in the treatment of the various thyroid diseases.

Lehrbuch der Kinderheilkunde. Von R Degkwitz, et al. Fourth and fifth edition edited by E. Rominger. Cloth 49 80 marks. Pp. 971, with 267 illustrations. Springer-Verlag, Reichpietschufer 20, Berlin W 35, 1950.

It is gratifying to see medical books of quality appear again in Europe. This most recent edition of Rominger's textbook of pediatrics contains contributions of pediatricians well known in this country and well qualified to write their respective chapters. The purpose of the book, as stated by the editor, is to give a basic working knowledge of pediatrics to the medical student and to the general practitioner. This has been ably achieved. The "most important results of research," however, which the authors attempted to incorporate in the text, are to some extent missing. This is probably due to their admitted inability to obtain all the necessary literature from abroad. The German scientific way of writing has unfortunately not changed through the decades. Sentences are unnecessarily long and cumbersome to read. The definition of rheumatic fever, for example, consists of nine lines, eight commas, but no periods.

In comparison with American textbooks, there are some differences in concept of some disease processes. Roseola infantum, for instance, is not considered a separate clinical entity. Erythroblastosis as well as cystic fibrosis of the pancreas are given little space, whereas nutritional disturbances like *Milchnaerschaden* and *Mehlnachrschaden* still seem to play a large role in German pediatric thinking. The discussion of treatment often falls short of its goal. Specific antiepileptic drugs have apparently not yet been given extensive trials. The outline of care for the rheumatic fever patient is but brief.

The book has many excellent illustrations and is well printed on good paper. Yet one would like to see the custom discontinued of printing long passages in fine print, as is commonly done in German textbooks.

The general practitioner as well as the pediatrician will find this textbook a useful reference.

McClung's Handbook of Microscopical Technique for Workers in Animal and Plant Tissues. By Thirty-Five Authors. Edited by Ruth McClung Jones, Professor of Biology, Winthrop College, Rock Hill, South Carolina Third edition. Cloth. $12. Pp. 790, with 157 illustrations. Paul B. Hoeber, Inc. (Medical Book Department of Harper & Brothers), 19 E 33rd St, New York 16, 1950.

Microscopic examination of the cellular elements of plants and animals is an essential procedure in the biologic sciences and a supplementary method in other fields of scientific investigation. Improperly prepared specimens result in errors, misinterpretations and last, but not least, frustration on the part of the technician. Technical skill is the pinnacle of success in the field, but it is necessarily dependent on adequately detailed procedures and formulas which often are lacking in published scientific literature.

This volume, succeeding the 1937 edition of the late Clarence E. McClung, conforms with his policy of including new methods, references, fundamental principles and the characteristics of the cellular components involved. Parts 1 and 2 include the more conventional methods of preparing slides, fixation of tissues and staining procedures. Part 3 describes special procedures, such as micrurgical technic, vital stains, centrifuge microscope, phase microscopy, fluorescence microscopy, radioautographic technic, electron microscopy and microincineration methods. The volume will provide excellent reference material for clinical and pathological laboratories and biologic science departments in universities and medical schools.

Pathologic Physiology: Mechanisms of Disease. Edited by William A Sodeman, M.D., F.A.C.P., William Henderson Professor of the Prevention of Tropical and Semi-Tropical Diseases, Tulane University of Louisiana School of Medicine, New Orleans Cloth. $11.50. Pp. 808, with 146 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St, Shaftesbury Ave, London, W.C.2, 1950.

This book presents the abnormal physiology of internal diseases as viewed by 25 contributors including the editor. The presentation of physiology in this way can be likened to medical pathology presented in the well known monograph, "the Pathology of Internal Diseases," by William Boyd. There is room for this method of dealing with basic physiology, despite the existence of such familiar textbooks as Wiggers' "Physiology in Health and Disease" and Best and Taylor's "Physiological Basis of Medical Practice."

The author seeks to correlate the disturbances in physiology which are related to the clinical manifestations of internal disease. The subject matter is handled by systems and by etiological aspect of disease. The limitations of physiology make it impossible to encompass the various phases of disease presented by standard textbooks of medicine. Nevertheless, the book achieves its primary objective of explaining signs and symptoms in terms of physiology.

The contributors have written for the beginning student, so that the book can be used in conjunction with elementary textbooks of physiology and medicine. This may limit its appeal to physicians and postgraduate students. The references listed at the end of each section are sufficient to stimulate advanced study. Fundamental concepts are properly emphasized. The chapters on infection and allergy involve the science of immunology more than physiology. The typography is pleasing, and the illustrations are clear. A good index is provided. Students and practitioners of medicine will find the book a useful supplement to standard textbooks used in medicine.

Klinik und Therapie der massiven Magendarmblutung. Von Dr. Nicola Markoff, Privatdozent an der Universitat Zurich. Lieferung II, Sammlung innere Medizin und ihre Grenzgebiete, herausgegeben von Prof. Dr. med. P. H. Rossler und Priv. Doz. Dr. med. O. Spuhler, Paper. 11 20 Swiss francs. Pp. 135, with 31 illustrations. Hans Huber, Marktgasse 9, Bern 16, 1950.

The author of this commendable monograph discusses the problems presented by severe hemorrhage from the upper part of the gastrointestinal tract. He reviews a substantial number of previous publications and presents the results of 102 cases. These are summarized in an excellent table beginning on page 102, and 19 of them are presented in greater detail in the text. On page 83 there begins a discussion of the "treatment with food," which seems to have given good results in the author's hands; on this point his experience differs from that reported by J. R. Brown and associates (*Arch. Surg.* **61**: *767-774* [Oct.] 1950). The difference is not surprising, since there are indications that geography influences the relative frequency of various types of upper gastrointestinal disease. On pages 125 and 126, the author gives a compact summary of his convictions as to diagnosis and treatment. The book closes with a bibliography of 268 references, on which the author deserves a special compliment. Whereas some recent books contain bibliographies full of mutilated foreign names and incomplete data, in the present case there seems to be complete accuracy.

A Text-Book of Venereal Diseases. By R. R. Willcox, Consultant in Venereal Diseases, St. Mary's Hospital, London. Cloth. $5. Pp. 439, with 154 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

The author is a well known English venereologist. He is consultant to several of the larger venereal disease clinics in London as well as to the World Health Organization. He has spent much time in Africa, where he has investigated venereal diseases.

This book was written, according to the author, because most of the textbooks on venereal disease were insular and ignored many disorders of venereal or nonvenereal origin which were commonly encountered in many parts of the world. This is a textbook with a global outlook, which deals with the problem of the venereologist not only in temperate climates but also in Central Africa and South Africa The book is divided into three parts; there is no bibliography. The first part deals with gonorrhea and related diseases. The second is concerned with the various types of syphilitic infection as well as yaws, bejel and pinta. The discussion of the latter three diseases is brief but adequate and well illustrated. The third part discusses the drugs and antibiotics used in the treatment of the venereal diseases, as well as prophylaxis and venereal disease control. This section is entirely up to date. The author has written an excellent short textbook on the venereal diseases.

On the Experimental Morphology of the Adrenal Cortex. By Hans Selye, M.D., Ph.D., D.Sc., Professor and Director of the Institute of Experimental Medicine and Surgery, University of Montreal, Montreal, Canada, and Helen Stone, B.Sc. Publication Number 74, American Lecture Series, A Monograph in American Lectures in Endocrinology, edited by Willard O. Thompson, M.D., Clinical Professor of Medicine, University of Illinois College of Medicine, Chicago. Cloth. $2.25. Pp. 105, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This small monograph was issued presumably in response to the present interest in the adrenal cortex but would have appeared more appropriately as an experimental study in one of the usual journals. The authors have studied the effects of variations in the protein and salt content of the diet on the size and appearance of the adrenal in 10 rats which had been subjected to unilateral nephrectomy and which were given injections of crude lyophilized pituitary tissue, crude saline extracts of fresh beef pituitary glands, pituitary adrenocorticotropic hormone, methyltestosterone, sodium thyroxinate and desoxycorticosterone acetate.

The senior author of the monograph has attracted attention by his "general adaptation syndrome," according to which the adrenal cortex is involved in many diseases (rheumatism and hypertension, for example) which he considers to be a result of the stresses of modern life. The simplicity with which this theory explains the phenomena of disease has attracted attention, but the more perspicacious workers in the field have not yet accepted it as fully satisfactory. The present monograph is an example of how wide conclusions may be drawn from a few experiments. Such statements as (page 28) "Since endogenous or exogenous protein-catabolites increase the ability of the pituitary to produce corticotrophin under stress, protein-anabolic testoids may inhibit hypophyseal corticotrophin secretion by diminishing the available supply of endogenous protein-catabolites," may impress some readers but will be criticized by the reader who prefers a simple presentation. Likewise, the morphological changes described in the adrenal do not justify the broad conclusions drawn by the authors.

The printing and format of this text, except for occasional oversights in proofreading, are excellent. Admirers of Selye's work will like the book; his critics will find it wanting.

Cytology of the Human Vagina. By Inés L. C. de Allende, M.D., Chief of the Division of Endocrinology, Mercedes and Martin Ferreyra Institute of Medical Investigation, and Oscar Orías, M.D., Director, Mercedes and Martin Ferreyra Institute of Medical Investigation, Córdoba, Argentina. With a Foreword by Bernardo A. Houssay, M.D. Translated from the Spanish by George W. Corner, M.D. Cloth. $7.50. Pp. 286, with 75 illustrations. Paul B. Hoeber, Inc. (Medical Book Department of Harper & Brothers), 49 E. 33rd St., New York 16, 1950.

Thanks to the brilliant studies of Papanicolaou and others, it is now known that the vaginal mucosa in many animals and in humans reacts to hormones. Therefore, the trophic and cyclic functions of the sex hormones may easily be studied by cytological examination of the vaginal contents. This book is based on such intensive study. The translator is to be congratulated on having produced a book which is delightful to read.

The book is the result of long term study of about 200 examinations of normal subjects and those suffering from disorders of genital function. The authors discuss the female reproductive system, the human vaginal epithelium and its variations, preparations of the vaginal smear, characteristic vaginal smears and cytological curves, cytology of the vagina during the ovulating menstrual cycle, anovulatory cycles as seen in vaginal smears and the correlation between vaginal smears and menstrual disorders, sterility and other conditions.

Some of the clinical conclusions drawn by the authors might be contested. One might take strong issue with the statement that one should regulate the use of estrogens by maintaining the vaginal cornification within physiological limits, and with its characteristic alterations. The patient's clinical response and improvement are more important than the type of vaginal epithelium which follows the administration of estrogens. Not all will agree on the therapeutic use of estrogens in sterility due to ovarian insufficiency as advocated by the authors. It was found that progesterone neutralizes the exaggerated estrogenic activity and brings on menstruation if amenorrhea has existed. The most definite indication for testosterone therapy was found to be quick action in counteracting an exaggeratedly high estrogenic activity in the body. The administration of chorionic gonadotropins alone did not visibly improve the grade of vaginal cornification in cases of ovarian insufficiency. When chorionic gonadotropin was combined with a hypophyseal factor, the effect was to advance by one or two grades the functional capacity that exists at the start of treatment. At the end of the book is an extensive bibliography, which is valuable in itself. There are 75 illustrations, many in color. All the illustrations and charts have been well reproduced; the quality of the paper is good, and the book is well bound. The authors, the translator and the publishers are all to be congratulated on the excellence of the book.

Principles of Public Health Administration. By John J. Hanlon, M.S, M.D., M.P.H., Associate Professor of Public Health Practice, School of Public Health, University of Michigan, Ann Arbor. Cloth. $6. Pp. 506, with 48 illustrations. The C. V. Mosby Company, 3207 Washington Blvd, St. Louis 3, 1950.

The modern health department must do a complex job in a complicated social structure. The health officer must integrate his staff with all its varied training disciplines into a working team; cooperation of members of the health professions in private practice must be obtained; the community must be educated to look after its health needs, and other governmental and voluntary agencies must be understood so the health department program may be suitably integrated into the community picture.

Hanlon's new book gives much emphasis to the health officer's administrative problems, with full discussions of personnel management, fiscal and legal matters, public relations and the basic principles of organization. Public health administration has approached these problems in recent years with the scientific method now becoming widely used in the social sciences, and there is a great wealth of highly useful material. However, no previous public health textbook has devoted this much attention to these matters, even though they occupy a rather large proportion of the day's work.

The usual basic services of vital statistics, communicable disease control, maternal and child health, environmental health, laboratory services and health education are considered adequately. In addition, much attention is devoted to chronic disease control and to the administrative problems of medical care as they affect the health officer. Obviously, with communicable disease control as advanced as it now is, the community requires measures to aid in solving the chronic disease problems which are now the major public enemies. There exist already technics, such as multiphasic screening, which can best be applied on a community basis and which hold real promise of worth while achievement in aiding in the control of this group of diseases. The book contains a most interesting discussion of the economic and social value of preventive medicine, with much more detailed treatment than is usually found.

Unfortunately, insufficient emphasis is given to problems of such importance as mental health, nutrition, accident prevention, alcoholism, the hygiene of housing and disaster services. The health department of today must prepare itself to discharge its proper role in these fields also. Little attention is paid to the place of the medical social worker in public health activities, and the discussion of health centers is much too brief to be satisfactory. There is inadequate consideration of the essential planning roles of health councils and similar bodies so important in giving the citizen the chance to play the part in the total health program which only he can play. The bibliography is mediocre, and the indexing could definitely be improved to make the wealth of subject matter more readily available.

Even with these limitations, the book is still an unusually valuable one and represents a definite step forward in providing a textbook for public health students and a manual for active workers in the field. The practicing physician who is a member of a board of health or is active in community health services will find much helpful information also. It is primarily for "the man who decides to devote his professional life to . . . public health administration. What is expected of him appears to be impossible. Physician, engineer, lawyer, political scientist, economist, sociologist—must he be all of these and more?" The answer is, of course, in the affirmative, and this book will make the impossible task even more satisfying and rewarding than it now is.

Eyes and Industry (Formerly Industrial Ophthalmology). By Hedwig S. Kuhn, M.D. Second edition. Cloth. $8.50. Pp. 378, with 151 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1950.

In this edition, this well known textbook on industrial ophthalmology retains its authoritative preeminence in the field. It contains much of importance not only to the industrial surgeon and the ophthalmologist with a primary interest in the field but also to the ophthalmologist who may see as private patients persons whose condition of work may play an important role in ocular comfort and efficiency.

There is a discussion of the technics of visual testing in industry, visual skills in relation to the type of employment, visual standards and the possibilities of a corrective program. A special chapter on eye injuries caused by solid bodies is contributed by Dr. Albert C. Snell and should prove informative, especially to those charged with emergency treatment of eye injuries. Further chapters deal with damage from radiation and chemicals, types of protective goggles, illumination in industry and the place of the blind in industry. In a miscellaneous chapter is discussed monocular cataract and epidemic keratoconjunctivitis in what may seem a rather illogical grouping of two unrelated conditions. Conveniently included in the appendix are the report of the Committee on Compensation for Eye Injuries of the American Medical Association, the federal specifications for goggles, standing orders for nurses and miscellaneous information on fluorescent lighting, tinted lenses and other material quoted from a number of sources.

Bronchoscopy in Pulmonary Tuberculosis: A Clinical Study of 1,001 Cases of Bronchoscopic Examinations. By Nils Froste. Acta tuberculosea scandinavica, supplementum XXIII. Paper. Pp. 119, with 2 illustrations. Boden; Ejnar Munksgaard, Nørregade 6, Copenhagen K, 1950.

The author is the consulting bronchoscopist at the Central Sanatorium in Sandträsk. The book is divided into chapters covering the following subjects: historical survey, material, technic, nomenclature and consultation procedure, indications and contraindications, lymphadenitis, tuberculosis, bronchostenoses, valve mechanism, atelectasis, hemoptysis, occlusion and aspiration treatments, routine bronchoscopy and postbronchoscopic complications.

Following a review of historical data, the author points out that at present there is a definite increase in the use of bronchoscopy for diagnosis in diseases of the lung. However, the therapeutic work with bronchoscopy has suffered a setback since the introduction of paraaminosalicylic acid and streptomycin for the treatment of bronchial complications in pulmonary tuberculosis.

Much space is devoted to the subject of biopsy in tuberculosis, and a special investigation was carried out to determine whether such a procedure on the bronchomucous membrane produced any "inconvenience." Of eight cases in which results of biopsy were positive for tuberculosis, there was progression in two after biopsy. In one case, in which results of biopsy were negative, bronchogenous extension of the tuberculosis arose. The author emphasizes that these three cases should at least suggest a warning note as to the possible dangers of the procedure. At the end of the book a rather inclusive bibliography is found. The book is easily read, and many illustrative cases are presented. It can be recommended to anyone interested in the bronchoscopic phase of pulmonary tuberculosis.

Surgical Treatment for Abnormalities of the Heart and Great Vessels. By Robert E. Gross, M.D., William E. Ladd Professor of Child Surgery, Harvard University Medical School, Boston. The Beaumont Lecture, Wayne County Medical Society, Detroit, Michigan. Publication Number 3, American Lecture Series, A Monograph in American Lectures in Surgery. Edited by Michael E. DeBakey, M.D., Associate Professor of Surgery, Tulane University, New Orleans, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Ky. Thoracic Surgery Division, Editor: Brian Blades, M.D., Professor of Surgery, George Washington University, Washington, D. C. Second printing. Cloth. $2. Pp. 72, with 36 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This is the twenty-fifth Beaumont Lecture, delivered in 1946 and first published in monograph form in 1947. The author was a pioneer in the development of operations for correction of most of the conditions described, which include patent ductus arteriosus, defects of the pericardium, the tetralogy of Fallot, anomalies of the aortic arch and subclavian artery and coarctation of the aorta. When the monograph was written, the author had operated on 130 patients with patent ductus arteriosus and seven patients with coarctation of the aorta. Although his operative experience has since been greatly extended, the views expressed are essentially the same as those in his more recent publications. The pathological physiology of the various anomalies is thoroughly discussed, and surgical technics are clearly illustrated.

The National Formulary. Ninth Edition. National Formulary IX. Prepared by the Committee on National Formulary under the supervision of the Council by the Authority of the American Pharmaceutical Association. Official from November 1, 1950. Cloth. $8. Pp. 877. American Pharmaceutical Association, 2215 Constitution Ave., N.W., Washington 7, D. C.; Mack Printing Company, Easton, Pa., 1950.

The new formulary contains titles and standards for 155 articles not previously included. A total of 162 items official in the previous edition were not admitted to this edition. As has been customary in the past, the admission of drugs to this edition is based not only on the therapeutic value of a given agent but also on the extent of its use. The trend to abandon outmoded botanicals and biologic preparations, which received impetus in the previous edition, is continued. Representative of this type of deletion are the botanicals uva ursi and valerian and animal products of questionable therapeutic value, such as ovary and anterior pituitary. Individual specifications for previously official drugs have also been revised and improved. Among the new features of this edition are specifications for disintegration time for tablets, weight variation standards for tablets and requirements limiting weight variation in the contents of dry ampuls and other containers. The general chapter on injections has also been revised. The new National Formulary reflects the basic changes in drug therapy which have evolved in recent years. It has value to pharmacists and pharmaceutical manufacturers as a source for information and standards for certain drugs and also provides physicians with an "official" list of many popular therapeutic agents.

Las formas anatomoclinicas de la tuberculosis tráqueobronquial en sus relaciones con la tuberculosis pulmonar del niño y del adulto. Por el doctor Manuel Tapia. Con la colaboración de los doctores José Manuel Soares de Oliveira y Luis Cerezo. Con un capitulo sobre la técnica de la broncoscopia. Por el doctor Antonio da Costa Quinta, otorrinolaringólogo del Hospital infantil de San Roque, de Lisboa. Cloth. 390 pesetas. Pp. 718, with 516 illustrations. Editorial Alhambra, Mayor, 4, Madrid, 1950.

This excellently prepared volume in Spanish on tracheobronchial tuberculosis covers a significant phase of pulmonary tuberculosis in a detailed and exhaustive fashion, adequately illustrated by colors, diagrams and photographs. The text displays a good knowledge of the subject as a result of long experience in the work concerned. The volume details the arboral bronchial distribution and limitations concerning the pulmonary segments and presents the various advances and views on this subject. Tuberculous tracheobronchitis is considered generally as to frequency and anatomic, pathological and pathogenic characteristics in relation to the primary infection and subsequent reinfection and exacerbations. The importance of tuberculosis of the bronchi and difficulties in diagnosis with the syndromes of extension in the chronic forms are detailed. Radiological diagnosis, including indirect signs, and bronchography are well covered. Classification as to type of tuberculoses and the relation of adenopathy to this are viewed liberally, even to the consideration of perforation. The forms of extension are completely elucidated, and treatment in all phases is covered, including rest, climate, symptomatology, ultraviolet rays, cauterization, antibiotics and paraaminosalicylic acid. Collapse treatment is discussed, and full consideration is accorded pneumothorax, thoracoplasty, phrenicectomy and pneumoperitoneum. A chapter is devoted to resection (pneumonectomy and lobectomy), and in a final chapter the technic of bronchoscopy, with preparation, anesthesia and difficulties encountered, is described.

This well presented volume is liberally illustrated, detailed in every respect and printed on a high grade, filled paper. It can be recommended particularly to physicians conversant with Spanish who are interested in tracheobronchial conditions and tuberculosis in particular.

Psychiatry for Social Workers. By Lawson G. Lowrey, M.D. Second edition. Cloth. $4.50. Pp. 385. Columbia University Press, 2960 Broadway, New York 27, 1950.

This book has been prepared as a guide to social workers to *enable them to recognize symptoms of common psychiatric dis*orders which may underlie the maladjustments of the persons with whom they deal in case work. It provides useful information for the social worker in deciding when he should call for psychiatric diagnosis and treatment, and it contains information which will enable him to realize the limitations of nonprofessonal treatment. Data on etiology, psychopathology, history, prognosis and treatment are provided for the major types of disorders. In this edition, many of the chapters have been completely revised, and a chapter on the social worker and treatment has been added which outlines some of the basic principles of case work treatment and psychotherapy. The responsibilities that a social worker may assume in treatment have been clearly defined.

Immortal Magyar: Semmelweis, Conqueror of Childbed Fever. By Frank G. Slaughter, M.D. Cloth. $3.50. Pp. 211, with 5 illustrations. Henry Schuman, Inc., Publishers, 20 E. 70th St., New York 21, 1950.

This excellent story of the life of Semmelweis appears shortly after another well written dramatization of one of the world's greatest benefactors ("The Cry and the Covenant"). The author of this book presents the tragic life of Semmelweis in a most interesting fashion. His data are factual, and he quotes fairly extensively from Semmelweis' own book, "Die Aetiologie, der Begriff and die Prophylaxis des Kindbettfieber." Slaughter is to be commended for having again brought to everyone's attention what a true scientist Semmelweis was and how his life ended in a great tragedy as a martyr to the world's stupidity. This book is definitely worth reading, even though its subject matter constantly upsets the reader because of "man's inhumanity to man."

On Low-Back Pain with Special Reference to the Value of Operative Treatment with Fusion: A Clinical and Experimental Study. By Lars Unander-Scharin. Acta orthopaedica scandinavica, Supplementum no. V. Translated from Swedish by Captain Jack O'Brien-Hitching, M.C. Paper. Pp. 221, with illustrations. Ejnar Munksgaard Forlag, Nørregade 6, Copenhagen K, 1950.

This book is divided into eight chapters: anatomy, physiology, pathology and pathophysiology of the interverbral disk; previous investigations of the roentgenologic picture, connection with trauma and the value of conservative treatment in lumbar disk degeneration; frequency of lumbago and sciatica among the members of the Stockholm Sick Benefit Society and the employees of the Stockholm Tramway Company; results of cases of lumbago and/or sciatica with roentgenologic disk degeneration that have been treated conservatively or left untreated; surgical treatment of disk degeneration in the lumbosacral spine; analysis of 80 patients with lumbar disk degeneration treated by spinal fusion; discussion of the clinical material, and investigations of the pressure conditions in the lumbar intervertebral disks with regard to the effect of lumbar osteosynthesis.

In chapter 2 the author quotes the work of Friberg and *Hirsch (1949). One hundred spines were removed from post*mortem specimens; these were radiographed in flexion and extension. It was found that pronounced degenerative changes were present without any radiographic manifestations. In cases where instability was present there were also conspicuous changes in the disk. When the roentgenogram revealed reduced disk space, sclerosis or osteophytes, the corresponding disk was severely damaged. The author believes that this investigation gives strong support to the opinion that lumbago and sciatica have their origin in degenerative changes in the intervertebral disks.

Among 6,948 male employees of the Stockholm Tramway Company, 408 were given diagnoses of lumbago and/or sciatica. It is thought probable that some connection exists between this high frequency of lumbago and/or sciatica and the nature of the work of the traffic staff. Of 185 men and 245 women treated in the hospital, 21 men and 18 women were operated on. The results of surgical treatment have been better than those obtained from conservative therapy, despite the fact that the patients treated surgically were those with the more serious conditions. The book consists of the compilation of a great deal of *statistical* data and should make a good reference volume for anyone interested in the subject of low back pain.

The Pathogenesis and Pathology of Viral Diseases. Edited by John G. Kidd. Symposium held at the New York Academy of Medicine, December 14 and 15, 1948. Symposia of the Section on Microbiology, The New York Academy of Medicine, Number 3. Cloth. $5. Pp. 235, with illustrations. Columbia University Press, 2960 Broadway, New York 27, 1950.

Since the organization, in 1947, of the Section on Microbiology of the New York Academy of Medicine, important contributions to modern medical literature have been made by that group. This, the third volume of a series of published symposia on bacterial, fungus and viral diseases, represents 14 papers presented on this subject. Many phases of the study of viruses are included. Dissemination of viruses, their relation to tissue cells, the lesions produced by several viruses and the pathological changes inherent therein are among the subjects presented. The bibliography supplied for each chapter enhances the value of the volume, and the book is recommended to those interested in the advances in virology.

Light Therapy. By Richard Kovacs, M.D., Professor of Physical Medicine, New York Polyclinic Medical School and Hospital, New York. Publication Number 57, American Lecture Series, A Monograph in American Lectures in Physical Medicine, edited by W. A. Selle, Ph.D., Professor of Biophysics, University of California School of Medicine, Los Angeles. Cloth. $2.25. Pp. 112, with 28 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This brief and attractive book is a semipopular sketch of the uses to which ultraviolet, visible and infra-red radiation have been put at various times in the treatment of human disease. It contains much scientific information and illustrates some recent forms of physical therapeutic apparatus, but it also contains some misleading statements, together with numerous small errors that are likely to puzzle students. It can be recommended, however, to physiatrists interested in having a recent summary of knowledge and attitudes in this particular *field.*

Textbook of Abnormal Psychology. By Roy M. Dorcus, Professor of Psychology, University of California, Los Angeles, and G. Wilson Shaffer, Dean of the University, Johns Hopkins University, Baltimore, Maryland. Fourth edition. Cloth. $5. Pp. 717, with illustrations. The Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1950.

This highly successful, now standard, textbook of abnormal psychology has reached this edition with little fundamental revision. The book is not truly a textbook of abnormal psychology, for it contains much of basic neurology and physiology. It attempts an encyclopedic, unbiased attitude toward every field and endeavor which can be considered significant to the understanding of abnormal psychology. As a result, it has a certain attractiveness for the academic teacher and lacks the emphasis on living human beings with problems of adjustment that the serious student of abnormal psychology needs. It has an extensive glossary, detailed author and subject indexes and 12,000 *bibliographic references.*

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

FAMILIAL DEAFNESS

To the Editor:—Two healthy young persons of good family background have three children. The older daughter, aged 8, and the only son, aged 2, are congenitally deaf. The daughter also has frequent bouts of pyuria with fever. No anomaly of the urinary tract has been found, despite adequate studies in two excellent institutions. The younger daughter, aged 6, has an interventricular septal defect. The younger brother of the father of these children and the younger sister of the mother have decided to marry. I was asked about the chance of the younger pair's having children with congenital defects. It is my guess that the father and mother of my patients each has a recessive gene which, combined, leads to defective offspring. Could you tell me where I could find an authoritative opinion? Hedwig Koenig, M.D., New York.

ANSWER.—Making the reasonable assumption that the deafness in this family is due to a recessive gene and that only one of the grandparents carried this recessive gene, one may state that the chance of the father's brother carrying the gene is one half. The chance of the mother's sister carrying the gene is also one half. The chance that both of these people carry the same recessive gene is therefore one quarter. If this chance is fulfilled, they may have some deaf children. The chance of any child's being deaf, if both parents carry the recessive gene, is one quarter. This makes the over-all probability of one sixteenth that a child of this marriage would be deaf.

TRICHOMONAS URETHRITIS

To the Editor:—What is the best treatment for a man, aged 51, with urethritis due to Trichomonas? An associated prostatitis exists, and a subsequent smear after vigorous prostatic massage revealed many pus cells and some Staphylococcus albus and diphtheroids. Sensitivity tests show penicillin to be the drug of choice, and I have given him 1.5 cc. of procaine penicillin in oil (300,000 units per cubic centimeter) daily for six days. He no longer has urethral discharge. However, arthralgia developed, and he complains of pains in the wrists, one ankle and one heel on awakening. These pains disappear by noon. Of what significance are these pains? Would aureomycin help? How soon may prostatic massages be resumed, and how often? M.D., Illinois.

ANSWER.—In most cases, chronic or subacute urethritis, whether due to Trichomonas or other agents, is secondary to prostatitis or urethral stricture and may be expected to disappear spontaneously after proper treatment of the underlying condition. The development of arthralgia raises the question of Reiter's syndrome, in which case dihydrostreptomycin would be the drug of choice. Locally, prostatic massage should be continued weekly until the prostatic fluid shows only 5 to 8 white cells per high power field on a thin wet smear. Heat in the form of rectal irrigations or hot sitz baths are beneficial as well as general hygienic measures. Before therapy is concluded, the possibility of a large-caliber stricture should be eliminated by calibration of the urethra with a bulbous bougie.

AIR HUNGER

To the Editor:—A patient complains of air hunger, more pronounced in the evening or when she becomes tired. No other symptoms are present. She has borderline anemia, for which I administer mety-carsiron (a proprietary mixture of iron, copper and sodium cacodylates) and thiamine hydrochloride intravenously daily, with no effect. The only way she can gain relief from air hunger is by yawning. What could be the cause of this, and what treatment do you suggest?
Forrest C. Lawrence, M.D., Bartlesville, Okla.

ANSWER.—It is assumed that the important causes of air hunger have been ruled out, for example, heart failure, nephritis, diabetes, pulmonary fibrosis, emphysema, tumor, congenital anomalies of the heart or lungs and other causes of anoxia. The patient should be examined for "borderline" anemia; if anemia is present, proper therapy, depending on the type of anemia found, should be instituted. If, as stated, no other symptoms, and presumably no abnormal signs, are present and if one yawn immediately stops the air hunger, the condition perhaps represents a neurosis. If air hunger recurs after the few normal respiratory cycles, another underlying cause must be sought, some of which are named above. If the patient is neurotic, reassurance and deep breathing exercises may be helpful. The underlying cause of the neurosis must be sought and corrected.

TREATMENT OF MULTIPLE SCLEROSIS

To the Editor:—An article on multiple sclerosis appears in the December 1950 issue of *McCall's* magazine. I have been asked many times about this article and the advisability of Dr. Hinton Jonez' treatment at St. Joseph's Hospital, Tacoma, Wash. Any information you may give will be appreciated. Frank J. Burian, M.D., Williamson, W. Va.

ANSWER.—The course of treatment given by Dr. Hinton D. Jonez is purely for the relief of symptoms of multiple sclerosis. It seems to combine the work done by other investigators with emphasis on possible allergic factors. The histamine therapy was tried some years ago at the Mayo Clinic, with equivocal results. Curare (and its derivatives) was carefully investigated by Schlesinger and others and is still in use by some as a muscle relaxant. Allergy studies have likewise been carried out elsewhere. Physical therapy and rehabilitative methods are being utilized in several places. Dr. Jonez is using a combination of these methods in the widest concentrated attack on the symptoms of this disease.

The National Multiple Sclerosis Society (270 Park Avenue, New York 17) is convinced of Dr. Jonez' interest in the problem and of his integrity as a physician and scientist. In the absence of any more specific approach either to symptomatic relief of multiple sclerosis or to a cure, Dr. Jonez' program has much to recommend it and is well within the realm of ethical medicine. Neither he nor the society considers that his method cures multiple sclerosis. Further intensive investigation is under way.

Before a patient plans traveling long distances for treatment, inquiry should first be made as to whether such treatment is available through his own physician or medical center in his own or in nearby communities. Dr. Jonez has expressed his willingness to explain his methods to other physicians and is planning to publish his observations. The National Multiple Sclerosis Society strongly recommends that a patient ascertain whether he can be accommodated at Dr. Jonez' clinic before going to Tacoma.

CERVICAL SYMPATHETIC BLOCK AFTER CEREBRAL THROMBOSIS

To the Editor:—Kindly comment on the article in the November 11 issue of the *Saturday Evening Post*, on "something new about strokes."
Eugene F. Wahl, M.D., Edwardsville, Ill.

To the Editor:—A woman, 46 years old, with hypertension had a cerebral hemorrhage in 1945, at which time she lost her speech and was paralyzed on her right side. The patient's right arm now is semiparalyzed, and her right ankle is weak and turned inward. She wears a brace on this leg. The patient read an article in the Nov. 11, 1950, *Saturday Evening Post* that mentions a French surgeon, René Leriche, who is performing stellate ganglion block with procaine solution. It was stated that no danger is involved in this treatment. The patient wishes to try this therapy and has asked my opinion. Please inform me whether there have been any valuable results? Max M. Krauss, M.D., New York.

ANSWER.—A cervical sympathetic block (not a stellate block, which is hazardous in the hands of the average physician) is an easy procedure frequently used in vascular clinics. When this procedure is done within the first six to 12 hours after the occurrence of cerebral embolism or cerebral thrombosis, an acceleration of spontaneous recovery takes place. Obviously, the area of infarction itself cannot be influenced, but the marginal edema and vascular stasis can, since sudden improvement after procaine block of the cervical sympathetics does take place in over 50 per cent of the cases. All workers in this field would agree that cerebral hemorrhage should be excluded from this treatment. If the author had emphasized in his article in the *Saturday Evening Post* that every patient with apoplexy should have a spinal puncture on admission to the hospital, he would have made a large contribution to the welfare of these patients. It is a fact, however, that outside of neurological or neurosurgical clinics spinal puncture is not often carried out. Surgical intervention is definitely and urgently indicated in subarachnoid hemorrhage, and intracerebral hemorrhage can be evacuated in well selected cases, but nerve block cannot mitigate hemorrhage—it may even increase it.

Cervical sympathetic block following apoplexy, in which hemorrhage can be reasonably excluded, is a valuable emergency procedure (J. A. M. A. 136:659-664 [1948]). The article in the *Saturday Evening Post,* however, emphasizes the effect of repeated blocks or sympathectomies in advanced cases and here relies heavily on a California report (*Arch. Surg.* 61:286 [Aug.] 1950). This part of the problem is still in the experimental stage. The mechanism of relief in the advanced cases is unclear, and the value of the procedure is highly debatable.

TREATMENT OF OSTEOPOROSIS

To the Editor:—May I have the latest information on the treatment of osteoporosis in a lower leg after healed fracture with impaired circulation to the foot? The patient is a woman of 40 years. Her blood calcium is 9.5 mg. per 100 cc., and she has a basal metabolic rate of —8 per cent. She takes 2 grains (0.12 Gm.) of thyroid a day.

H. M. F. Behneman, M.D., Palm Springs, Calif.

ANSWER.—Localized osteoporosis usually is due not to any metabolic or endocrine disturbance but rather to a localized disease process, oftentimes with traumatic causation, which results in disturbed circulation to the part and in partial or complete immobilization. Fracture is a common cause, especially if prolonged immobilization in a cast and non-weight-bearing are required. From the meager information supplied, it is assumed that these circumstances reasonably obtained in the case in question and that the fracture was recent. The normal blood calcium substantiates the absence of metabolic fault; the apparent hypothyroid state (controlled by thyroid medication) is not pertinent to the localized osteoporosis. Since the bone decalcification is due to a local lesion, treatment should be essentially local. Measures to normalize circulation should be emphasized. Use of massage, exercises, contrast baths and passive vascular exercises (Buerger's exercises) should be of value. The most important single factor is the establishment of as nearly normal weight bearing on this extremity as is possible, as soon as possible. This will serve more than anything else to normalize function and metabolism in the affected bone.

Usually measures of benefit for generalized decalcification are of little or no help (high protein diet with androgen or estrogen therapy). Recovery of normal or nearly normal bone usually results if the management can be successfully instituted, although recalcification is notoriously slow.

Rh NEGATIVE WIFE, Rh POSITIVE HUSBAND

To the Editor:—I would appreciate advice on the following case: The wife's blood is group O, Rh negative, and the husband's, group O, homozygous, Rh positive (type Rh_1Rh_2 [CDe/cDe]). The only child is group O, Rh positive (type Rh_2 [cDE/cde]). The second pregnancy proceeded normally, antibodies developing in low titer at the twenty-sixth week. The titer gradually rose until the thirty-fifth week, when it was 1:512 in serum albumin. No blocking antibodies ever developed. At the thirty-sixth week the titer doubled, but labor was not induced. A few days later the child died in utero. The patient has been told that in all future pregnancies the child may die in utero or, if born alive, will require exsanguination-transfusion. If this is correct, can anything be done to prevent an antibody response? Is hapten of any use? Can it be obtained? Does the administration of vitamin K and progesterone throughout pregnancy prevent the passage of antibodies through the placenta? If treatment will not prevent fetal damage, should the patient be allowed to become pregnant again?

V. N. Gordon, M.B., Ch.B., South Africa.

ANSWER.—The husband is Rh positive and almost surely homozygous, while the wife is Rh negative and strongly sensitized to the Rh factor. Under such conditions, every child will almost surely be Rh positive and therefore severely erythroblastotic; in fact, it is very likely that every fetus will be stillborn. Only in exceptional cases will a viable erythroblastotic baby be born that can be saved by multiple transfusions of Rh-negative blood or by exchange transfusion (East, E. N., and Mair, C. M.: Intensive Immunization of an Already Sensitized Rh-negative Woman: Birth of a Mildly Diseased Baby, *J. Lab. & Clin. Med.* 34:983 [July] 1949). With regard to the reference cited, it should be pointed out that the title of the article is misleading, because the clinical course indi[illegible] that the baby was severely affected and was lucky to have [illegible] It was only after nine transfusions of a total of 560 [illegible] over [illegible]riod of 10 weeks that this baby finally re[illegible]

The couple may decide that, [illegible]ss, they wish to try again. A still[illegible]vitable, but by inducing labor fo[illegible] one might succeed in c[illegible] a [illegible] to practice contra[illegible] therapeutic abortio[illegible] justifiable, because such a pregnancy is almost certain to terminate with a hydropic stillbirth, and such stillbirths are associated with increased danger to the mother from toxemia and postpartum hemorrhage. If the patient becomes pregnant a second time, sterilization of the patient or her husband should be broached. If the couple is very anxious to have another child, they could adopt one, except that, in general, adoption agencies tend to give priority to childless couples. If the temperament of the couple is suitable, artificial insemination from an Rh-negative donor may be resorted to; this has never failed. However, one must bear in mind the moral and legal implications of the procedure (McCurdy, R. N. C.: The Rhesus Danger—Its Medical, Moral, and Legal Aspects, London, Wm. Heinemann Medical Books, Ltd., 1950). At least one court has found Rh sensitization grounds for divorce, maintaining that husband and wife are not sterile and could have children with other spouses of compatible Rh type.

Once a patient has become sensitized to the Rh factor, nothing can be done to eliminate or reduce the Rh antibody titer. The so-called Rh hapten has proved inert both in vitro and in vivo and is not recommended for treatment (Unger, L. J.: Studies on Preventive and Curative Treatments for Rh Sensitization, *Am. J. Obst. & Gynec.* 58:1186 [Dec.] 1949). Univalent Rh antibodies which are responsible for the disease, readily pass through the placenta, and vitamin K, progesterone and other drugs cannot prevent the placental transfer of antibodies (Wiener, A. S.: Rh Factor in Immunological Reactions, *Ann Allergy* 6:293 [May-June] 1948).

PROCAINE PENICILLIN AND SULFONAMIDES

To the Editor:—There have been reports that the procaine base part of the procaine penicillin preparations has an inhibitive action on sulfonamides, that the procaine part of a 1 cc. dose was enough to make concomitant sulfonamide therapy impossible. Is this correct? Can penicillin be expected to be stable for any length of time in a 3 per cent aqueous solution of sodium bicarbonate?

R. J. Kent, M.D., Savannah, N. Y.

ANSWER.—Procaine penicillin preparations contain about 120 to 125 mg. of procaine to each 300,000 units of penicillin per milliliter. Woods has demonstrated that a small quantity of paraaminobenzoic acid interferes with the effects of sulfanilamide and sulfapyridine and that procaine had a similar but delayed effect. This delay is probably due to the time involved in the enzymatic hydrolysis of procaine to paraaminobenzoic acid. In vitro studies show that paraaminobenzoic acid must be present only in a ratio of 1:2,000 to inhibit sulfanilamide but a concentration of 1:70 is necessary to inhibit sulfathiazole and the more soluble sulfonamides, such as sulfadiazine and sulfacetamide.

Studies in man indicate that after an injection of 1,500,000 units of aqueous procaine penicillin, appreciable levels of free procaine or paraaminobenzoic acid could not be demonstrated in the blood stream of over half the subjects tested, but evidence of an acetylated derivative of paraaminobenzoic acid was found. In 30 per cent of those tested, concentrations of less than 0.1 mg. of paraaminobenzoic acid per milliliter of serum were found, and 20 per cent showed insignificant traces of procaine.

Both the procaine and the acetylated paraaminobenzoic acid may be disregarded for inhibitory effect since the former is present in too low a concentration and the latter is relatively inactive. However, in the doses administered 30 per cent of the subjects tested did have blood concentrations of paraaminobenzoic acid sufficient to theoretically inhibit the action of sulfanilamide and sulfapyridine, but not sulfathiazole, sulfadiazine and other more soluble sulfonamides.

The procaine from procaine penicillin is released slowly, which probably accounts for the failure to attain a significant blood level of procaine. In addition, the paraaminobenzoic acid formed is excreted with relative rapidity. Therefore, the low total amount of procaine in procaine penicillin preparations, as well as its slow rate of release into the blood stream, and the rapid rate of excretion of paraaminobenzoic acid would make negligible any inhibitory effect of procaine penicillin preparations on the more soluble sulfonamides.

The stability of solutions of unbuffered sodium penicillin G kept at room temperature is rather short; within two days more than half of the original potency is lost. When kept at 10 C. and when a 0.1 M citrate buffering system was used, little appreciable loss was noted after 40 days, with but 20 per cent loss of potency after 80 days. Sodium bicarbonate would have slight preservati[illegible] action, since the products of penicillin decomposition are [illegible] but the stability would be only slightly longer than for [illegible]fered solutions.

CHEMICALS USED IN TANNING LEATHER AND IN SHOE POLISH

To the Editor:—What kind of chemicals are used in tanning leather for tan and black shoes, and what chemicals are used in the material for polishing both types of shoes? Is is possible to absorb any of this material? What effect would one experience?

Lester V. Stallsmith, Ph.D., Wilkes-Barre, Pa.

Answer.—Leather intended for black and for tan shoes undergoes the same early treatment. Such leather may represent the full thickness of some skins, such as calf skin, or a split of thicker hides, such as from cows. Preparation prior to tanning involves many steps and many chemicals. Among other chemicals are lime, sulfites, mineral and organic acids, amines and enzymes.. Tanning may be accomplished with a variety of agents, including chrome, aldehydes, quinones and vegetable and synthetic tannins. Tanning is followed by oiling and softening and at times splitting and artificial graining. In due course some leathers are dyed, otherwise colored or enameled. Paraphenylendiamine used to be extensively employed but has largely disappeared. Earlier, too, common solvents included the dangerous benzene methanol and nitrobenzene. Now various other alcohols, esters and naphthas are used. The choice of coloring agents is wide, but aniline dyes in black and brown are mostly used. Despite the protean steps and agents involved, good leather as made into shoes is without significant danger to the prospective wearer. Rarely on a basis of allergy skin affections may arise.

The formula for black shoe polishes is typical: 5 parts montan wax, 15 parts ceresin wax, 5 parts beeswax, 2 parts oil-soluble nigrosin and 50 parts turpentine. For tan polishes the same formula but without the coloring agent may be used, or low quantities of brown dyes may be introduced. Substantially no danger derives from their use. There is enormous variation in polish and dye constituents, and some brands may contain harmful agents.

SLIGHT PTOSIS OF UPPER EYELID

To the Editor:—A 14 year old girl has had slight blepharoptosis of the left eye since the age of 7. Some days it is slight; some days it is more noticeable. The girl is otherwise normal. I wish to know the possibility of a nonsurgical treatment, particularly the action of neostigmine, and the relation of this disorder to generalized myopathies.

Manuel Besoain-Santander, M.D., Santiago, Chile.

Answer.—Since there is no other abnormality and ptosis has been present for seven years with some variation in degree, the two most important diagnoses to consider are myasthenia gravis and progressive nuclear ophthalmoplegia. To differentiate between the two, a diagnostic injection of 1.5 mg. of neostigmine combined with 0.6 mg. of atropine should be given. A positive response of disappearance of the ptosis will favor a diagnosis of myasthenia gravis. The ptosis of progressive nuclear ophthalmoplegia will not respond to neostigmine. In this disease, ptosis often is the first symptom; it may be unilateral or bilateral and may be present for a number of years before the extraocular muscles are affected. The disease is progressive and the extraocular muscles eventually will become affected. Also, strong hereditary factors are involved, so that a careful search of the family history should be made. Progressive nuclear ophthalmoplegia may be seen in certain types of progressive muscular atrophy, but rarely with amyotrophic lateral sclerosis. It is observed also with tumors or vascular lesions of the brain stem, in multiple sclerosis, tabes, dementia paralytica, intoxication from lead, botulism, Wernicke's disease, and as a result of injuries. So far as nonsurgical treatment is concerned, the use of the "crutch" glass is probably the best device available. Neostigmine would be of value only if a diagnosis of myasthenia gravis is made.

NEW GROWTHS IN BREASTS OF INFANTS

To the Editor:—A 9 month girl has a firm, movable, discoid, nontender, subcutaneous mass, about 2.5 cm. in diameter, in the left breast. The center of the mass corresponds to the nipple but does not appear to be attached to the skin. Moderate prominence of the breast is obvious. The mass has been present since the child was 1 month old and appears to have grown slightly in recent weeks. I have observed this child almost daily, and she appears to be in perfect health. I would appreciate a brief discussion of the differential diagnosis.

M.D., Canal Zone.

Answer.—New growths of the infant breast are extremely uncommon. They are uniformly benign. Among those that have been observed are dermoid cyst, hemangioma and a rare intraductal papilloma with bleeding from the nipple. The single case of intraductal papilloma presented a soft, centrally located swelling. Pressure about the nipple produced a bloody discharge from the nipple.

These must be clinically differentiated from the common mastitis neonatorum which may appear immediately or shortly after birth and persist for a variable time. Occasionally this may be unilateral and persist for several months. As a rule, a flat, diffuse and slightly nodular swelling is palpable beneath the nipple and areola. No treatment is necessary, since the condition subsides spontaneously.

A cyst is palpable as a well defined and rounded mass located about the margin of the areola. Hemangiomas are more prone to appear in the parenchyma of the breast. They occur as soft, compressible and diffuse swellings. When deeply located and cavernous in type, there is only a faint, if any, bluish discoloration of the overlying skin.

LATENT SYPHILIS OR FALSE POSITIVE REACTION?

To the Editor:—A 42 year old woman had a 2 plus Kahn reaction of the blood in 1942. In September 1949 the state health department reported the following reactions: blood Kline, Wassermann and Kolmer positive and blood Kahn doubtful. A private laboratory reported the Kahn blood reaction positive at the same time, and another private laboratory gave the following results of blood tests: quantitative 10 units and Kahn, Kline, Mazzini and Pangborn reactions strongly positive. The spinal fluid in 1949 was clear and colorless, with 1 white blood cell, 1 lymphocyte, negative Pandy reaction, total proteins 100 mg., negative Kahn reaction, gum mastic 000000 and negative Kolmer reaction. Results of Kahn and Kline tests of the blood were positive, quantitative 4 units, Kolmer negative and Kline cardiolipin positive. A blood Kahn reaction of the blood was reported positive in July 1950, with 4 quantitative units. This patient denied having had venereal disease or having been treated for it. Results of her physical examination are normal. She had the usual childhood diseases and scarlet fever, asthma and eczema. In 1938 her tonsils and adenoids were removed; in 1942 she underwent a right nephrectomy and in 1949 an appendectomy. Does this patient have syphilis? Does the protein level indicate neurosyphilis? What treatment would you suggest?

M.D., Ohio.

Answer.—This patient has either late latent syphilis or a biologic false positive serologic reaction for syphilis. One cannot say which diagnosis is correct on the basis of standard serologic tests for syphilis. The abnormally high spinal fluid protein suggests central nervous system disease. It is unlikely that this disease is syphilis because of the negative spinal fluid complement fixation. This disease, whatever it may be, might be responsible for the false positive blood reaction. If, on repeated examination, the spinal fluid protein is still abnormally high and no cause can be found, then antisyphilitic treatment may be given. Treatment is given only because a definite diagnosis cannot be made and to give the patient maximum protection for the future in case she does have syphilis. A total of 6,000,000 units of procaine penicillin in oil with 2 per cent aluminum monostearate, given in 10 doses over a period of two to three weeks, should be adequate therapy.

RETARDED GROWTH

To the Editor:—A 7 year old girl, weight 30 pounds (14 Kg.), height 37¼ inches (95 cm.), has a normal history, with the usual childhood diseases. She has a poor appetite, desiring primarily carbohydrates, and takes about two hours to finish her meal. Her intelligence quotient is above average. Physical examination discloses no abnormalities. The parents are 5 feet 7 inches (170 cm.) and three other children are normal in height and weight. This girl has grown 1 inch (2.5 cm.) and has gained about 4 pounds (2 Kg.) in the past year. The parents are apprehensive concerning the weight and growth of this girl.

C. L. Qualls, M.D., Beaver Dam, Wis.

Answer.—Heredity and environment apparently do not play a role in this instance, as the parents and other siblings are normal. Although the physical examination disclosed no abnormalities, certain congenital defects may be discovered only by intensive studies. Congenital cardiovascular genitourinary and gastrointestinal hidden defects may stunt growth and development. Consequently roentgenograms of the chest, electrocardiograms, blood chemistry determinations (nonprotein nitrogen, sugar, calcium, cholesterol), gastrointestinal roentgenograms with barium, careful stool and urine examinations (including cultures) and intravenous pyelography might be revealing. Endocrine disturbances, especially of the pituitary, thyroid and ovary, may cause retarded growth. Endocrinological study would include basal metabolism, roentgen studies of epiphyseal center development and possibly estimations of 17-ketosteroids in the urine. The appropriate treatment would depend on the particular glandular disturbance, i. e., a hypothyroid child will grow rapidly when thyroid is administered. Testosterone, 10 mg. daily by mouth over a two month trial period, will often stimulate growth when no other cause can be found. Testosterone therapy should be stopped when any evidence of stimulating sex development is noticed.

Anorexia nervosa and other psychogenic disturbances might so interfere with the appetite and intake of food as to stunt growth. Information as to whether this child has been a "behavior problem" and whether she has other emotional dif-

Cervical sympathetic block following apoplexy, in which hemorrhage can be reasonably excluded, is a valuable emergency procedure (J. A. M. A. 136:659-664 [1948]). The article in the *Saturday Evening Post,* however, emphasizes the effect of repeated blocks or sympathectomies in advanced cases and here relies heavily on a California report (*Arch. Surg.* 61:286 [Aug.] 1950). This part of the problem is still in the experimental stage. The mechanism of relief in the advanced cases is unclear, and the value of the procedure is highly debatable.

TREATMENT OF OSTEOPOROSIS

***To the Editor:*—May I have the latest information on the treatment of osteoporosis in a lower leg after healed fracture with impaired circulation to the foot? The patient is a woman of 40 years. Her blood calcium is 9.5 mg. per 100 cc., and she has a basal metabolic rate of —8 per cent. She takes 2 grains (0.12 Gm.) of thyroid a day.**

H. M. F. Behneman, M.D., Palm Springs, Calif.

ANSWER.—Localized osteoporosis usually is due not to any metabolic or endocrine disturbance but rather to a localized disease process, oftentimes with traumatic causation, which results in disturbed circulation to the part and in partial or complete immobilization. Fracture is a common cause, especially if prolonged immobilization in a cast and non-weight-bearing are required. From the meager information supplied, it is assumed that these circumstances reasonably obtained in the case in question and that the fracture was recent. The normal blood calcium substantiates the absence of metabolic fault; the apparent hypothyroid state (controlled by thyroid medication) is not pertinent to the localized osteoporosis. Since the bone decalcification is due to a local lesion, treatment should be essentially local. Measures to normalize circulation should be emphasized. Use of massage, exercises, contrast baths and passive vascular exercises (Buerger's exercises) should be of value. The most important single factor is the establishment of as nearly normal weight bearing on this extremity as is possible, as soon as possible. This will serve more than anything else to normalize function and metabolism in the affected bone.

Usually measures of benefit for generalized decalcification are of little or no help (high protein diet with androgen or estrogen therapy). Recovery of normal or nearly normal bone usually results if the management can be successfully instituted, although recalcification is notoriously slow.

Rh NEGATIVE WIFE, Rh POSITIVE HUSBAND

***To the Editor:*—I would appreciate advice on the following case: The wife's blood is group O, Rh negative, and the husband's, group O, homozygous, Rh positive (type Rh_1Rh_2 [CDe/cDe]). The only child is group O, Rh positive (type Rh_2 [cDE/cde]). The second pregnancy proceeded normally, antibodies developing in low titer at the twenty-sixth week. The titer gradually rose until the thirty-fifth week, when it was 1:512 in serum albumin. No blocking antibodies ever developed. At the thirty-sixth week the titer doubled, but labor was not induced. A few days later the child died in utero. The patient has been told that in all future pregnancies the child may die in utero or, if born alive, will require exsanguination-transfusion. If this is correct, can anything be done to prevent an antibody response? Is hapten of any use? Can it be obtained? Does the administration of vitamin K and progesterone throughout pregnancy prevent the passage of antibodies through the placenta? If treatment will not prevent fetal damage, should the patient be allowed to become pregnant again?**

V. N. Gordon, M.B., Ch.B., South Africa.

ANSWER.—The husband is Rh positive and almost surely homozygous, while the wife is Rh negative and strongly sensitized to the Rh factor. Under such conditions, every child will almost surely be Rh positive and therefore severely erythroblastotic; in fact, it is very likely that every fetus will be stillborn. Only in exceptional cases will a viable erythroblastotic baby be born that can be saved by multiple transfusions of Rh-negative blood or by exchange transfusion (East, E. N., and Mair, C. M.: Intensive Immunization of an Already Sensitized Rh-negative Woman: Birth of a Mildly Diseased Baby, *J. Lab. & Clin. Med.* 34:983 [July] 1949). With regard to the reference cited, it should be pointed out that the title of the article is misleading, because the clinical course indicates that the baby was severely affected and was lucky to have survived. It was only after nine transfusions of a total of 560 cc. of blood over a period of 10 weeks that this baby finally recovered.

The couple may decide that, despite the odds against success, they wish to try again. A stillbirth would be practically inevitable, but by inducing labor four to six weeks before term one might succeed in obtaining a viable baby. It would be far wiser to practice contraception; should the wife become pregnant, a therapeutic abortion would be indicated. Therapeutic abortion is justifiable, because such a pregnancy is almost certain to terminate with a hydropic stillbirth, and such stillbirths are associated with increased danger to the mother from toxemia and postpartum hemorrhage. If the patient becomes pregnant a second time, sterilization of the patient or her husband should be broached. If the couple is very anxious to have another child, they could adopt one, except that, in general, adoption agencies tend to give priority to childless couples. If the temperament of the couple is suitable, artificial insemination from an Rh-negative donor may be resorted to; this has never failed. However, one must bear in mind the moral and legal implications of the procedure (McCurdy, R. N. C.: The Rhesus Danger—Its Medical, Moral, and Legal Aspects, London, Wm. Heinemann Medical Books, Ltd., 1950). At least one court has found Rh sensitization grounds for divorce, maintaining that husband and wife are not sterile and could have children with other spouses of compatible Rh type.

Once a patient has become sensitized to the Rh factor, nothing can be done to eliminate or reduce the Rh antibody titer. The so-called Rh hapten has proved inert both *in vitro* and *in vivo* and is not recommended for treatment (Unger, L. J.: Studies on Preventive and Curative Treatments for Rh Sensitization, *Am. J. Obst. & Gynec.* 58:1186 [Dec.] 1949). Univalent Rh antibodies which are responsible for the disease, readily pass through the placenta, and vitamin K, progesterone and other drugs cannot prevent the placental transfer of antibodies (Wiener, A. S.: Rh Factor in Immunological Reactions, *Ann. Allergy* 6:293 [May-June] 1948).

PROCAINE PENICILLIN AND SULFONAMIDES

***To the Editor:*—There have been reports that the procaine base part of the procaine penicillin preparations has an inhibitive action on sulfonamides, that the procaine part of a·1 cc. dose was enough to make concomitant sulfonamide therapy impossible. Is this correct? Can penicillin be expected to be stable for any length of time in a 3 per cent aqueous solution of sodium bicarbonate?**

R. J. Kent, M.D., Savannah, N. Y.

ANSWER.—Procaine penicillin preparations contain about 120 to 125 mg. of procaine to each 300,000 units of penicillin per milliliter. Woods has demonstrated that a small quantity of paraaminobenzoic acid interferes with the effects of sulfanilamide and sulfapyridine and that procaine had a similar but delayed effect. This delay is probably due to the time involved in the enzymatic hydrolysis of procaine to paraaminobenzoic acid. In vitro studies show that paraaminobenzoic acid must be present only in a ratio of 1:2,000 to inhibit sulfanilamide but a concentration of 1:70 is necessary to inhibit sulfathiazole and the more soluble sulfonamides, such as sulfadiazine and sulfacetamide.

Studies in man indicate that after an injection of 1,500,000 units of aqueous procaine penicillin, appreciable levels of free procaine or paraaminobenzoic acid could not be demonstrated in the blood stream of over half the subjects tested, but evidence of an acetylated derivative of paraaminobenzoic acid was found. In 30 per cent of those tested, concentrations of less than 0.1 mg. of paraaminobenzoic acid per milliliter of serum were found, and 20 per cent showed insignificant traces of procaine.

Both the procaine and the acetylated paraaminobenzoic acid may be disregarded for inhibitory effect since the former is present in too low a concentration and the latter is relatively inactive. However, in the doses administered 30 per cent of the subjects tested did have blood concentrations of paraaminobenzoic acid sufficient to theoretically inhibit the action of sulfanilamide and sulfapyridine, but not sulfathiazole, sulfadiazine and other more soluble sulfonamides.

The procaine from procaine penicillin is released slowly, which probably accounts for the failure to attain a significant blood level of procaine. In addition, the paraaminobenzoic acid formed is excreted with relative rapidity. Therefore, the low total amount of procaine in procaine penicillin preparations, as well as its slow rate of release into the blood stream, and the rapid rate of excretion of paraaminobenzoic acid would make negligible any inhibitory effect of procaine penicillin preparations on the more soluble sulfonamides.

The stability of solutions of unbuffered sodium penicillin G kept at room temperature is rather short; within two days more than half of the original potency is lost. When kept at 10 C. and when a 0.1 M citrate buffering system was used, little appreciable loss was noted after 40 days, with but 20 per cent loss of potency after 80 days. Sodium bicarbonate would have slight preservative action, since the products of penicillin decomposition are acid, but the stability would be only slightly longer than for unbuffered solutions.

CHEMICALS USED IN TANNING LEATHER AND IN SHOE POLISH

To the Editor:—What kind of chemicals are used in tanning leather for tan and black shoes, and what chemicals are used in the material for polishing both types of shoes? Is is possible to absorb any of this material? What effect would one experience?

Lester V. Stallsmith, Ph.D., Wilkes-Barre, Pa.

ANSWER.—Leather intended for black and for tan shoes undergoes the same early treatment. Such leather may represent the full thickness of some skins, such as calf skin, or a split of thicker hides, such as *from* cows. *Preparation prior to tanning* involves many steps and many chemicals. Among other chemicals are lime, sulfites, mineral and organic acids, amines and enzymes. Tanning may be accomplished with a variety of agents, including chrome, aldehydes, quinones and vegetable and synthetic tannins. Tanning is followed by oiling and softening and at times splitting and artificial graining. In due course some leathers are dyed, otherwise colored or enameled. Paraphenylendiamine used to be extensively employed but has largely disappeared. Earlier, too, common solvents included the dangerous benzene methanol and nitrobenzene. Now various other alcohols, esters and naphthas are used. The choice of coloring agents is wide, but aniline dyes in black and brown are mostly used. Despite the protean steps and agents involved, good leather as made into shoes is without significant danger to the prospective wearer. Rarely on a basis of allergy skin affections may arise.

The formula for black shoe polishes is typical: 5 parts montan wax, 15 parts ceresin wax, 5 parts beeswax, 2 parts oil-soluble nigrosin and 50 parts turpentine. For tan polishes the same formula but without the coloring agent may be used, or low quantities of brown dyes may be introduced. Substantially no danger derives from their use. There is enormous variation in polish and dye constituents, and some brands may contain harmful agents.

SLIGHT PTOSIS OF UPPER EYELID

To the Editor:—A 14 year old girl has had slight blepharoptosis of the left eye since the age of 7. Some days it is slight; some days it is more noticeable. The girl is otherwise normal. I wish to know the possibility of a nonsurgical treatment, particularly the action of neostigmine, and the relation of this disorder to generalized myopathies.

Manuel Besoain-Santander, M.D., Santiago, Chile.

ANSWER.—Since there is no other abnormality and ptosis has been present for seven years with some variation in degree, the two most important diagnoses to consider are myasthenia gravis and progressive nuclear ophthalmoplegia. To differentiate between the two, a diagnostic injection of 1.5 mg. of neostigmine combined with 0.6 mg. of atropine should be given. A positive response of disappearance of the ptosis will favor a diagnosis of myasthenia gravis. The ptosis of progressive nuclear ophthalmoplegia will not respond to neostigmine. In this disease, ptosis often is the first symptom; it may be unilateral or bilateral and may be present for a number of years before the extraocular muscles are affected. The disease is progressive and the extraocular muscles eventually will become affected. Also, strong hereditary factors are involved, so that a careful search of the family history should be made. Progressive nuclear ophthalmoplegia may be seen in certain types of progressive muscular atrophy, but rarely with amyotrophic lateral sclerosis. It is observed also with tumors or vascular lesions of the brain stem, in multiple sclerosis, tabes, dementia paralytica, intoxication from lead, botulism, Wernicke's disease, and as a result of injuries. So far as nonsurgical treatment is concerned, the use of the "crutch" glass is probably the best device available. Neostigmine would be of value only if a diagnosis of myasthenia gravis is made.

NEW GROWTHS IN BREASTS OF INFANTS

To the Editor:—A 9 month girl has a firm, movable, discoid, nontender, subcutaneous mass, about 2.5 cm. in diameter, in the left breast. The center of the mass corresponds to the nipple but does not appear to be attached to the skin. *Moderate prominence* of the breast is obvious. The mass has been present since the child was 1 month old and appears to have grown slightly in recent weeks. I have observed this child almost daily, and she appears to be in perfect health. I would appreciate a brief discussion of the differential diagnosis.

M.D., Canal Zone.

ANSWER.—New growths of the infant breast are extremely uncommon. They are uniformly benign. Among those that have been observed are dermoid cyst, hemangioma and a rare intraductal papilloma with bleeding from the nipple. *The single* case of intraductal papilloma presented a soft, centrally located swelling. Pressure about the nipple produced a bloody discharge from the nipple.

These must be clinically differentiated from the common mastitis neonatorum which may appear immediately or shortly after birth and persist for a variable time. Occasionally this may be unilateral and persist for several months. As a rule, a flat, diffuse and slightly nodular swelling is palpable beneath the nipple and areola. No treatment is necessary, since the condition subsides spontaneously.

A cyst is palpable as a well defined and rounded mass located about the margin of the areola. Hemangiomas are more prone to appear in the parenchyma of the breast. They occur as soft, compressible and diffuse swellings. When deeply located and cavernous in type, there is only a faint, if any, bluish discoloration of the overlying skin.

LATENT SYPHILIS OR FALSE POSITIVE REACTION?

To the Editor:—A 42 year old woman had a 2 plus Kahn reaction of the blood in 1942. In September 1949 the state health department reported the following reactions: blood Kline, Wassermann and Kolmer positive and blood Kahn doubtful. A private laboratory reported the Kahn blood reaction positive at the same time, and another private laboratory gave the following results of blood tests: quantitative 10 units and Kahn, *Kline, Mazzini and Pangborn reactions strongly positive. The spinal* fluid in 1949 was clear and colorless, with 1 white blood cell, 1 lymphocyte, negative Pandy reaction, total proteins 100 mg., negative Kahn reaction, gum mastic 000000 and negative Kolmer reaction. Results of Kahn and Kline tests of the blood were positive, quantitative 4 units, Kolmer negative and Kline cardiolipin positive. A blood Kahn reaction of the blood was reported positive in July 1950, with 4 quantitative units. This patient denied having had venereal disease or having been treated for it. Results of her physical examination are normal. She had the usual childhood diseases and scarlet fever, asthma and eczema. In 1938 her tonsils and adenoids were removed; in 1942 she underwent a right nephrectomy and in 1949 an appendectomy. Does this patient have syphilis? Does the protein level indicate neurosyphilis? What treatment would you suggest?

M.D., Ohio.

ANSWER.—This patient has either late latent syphilis or a biologic false positive serologic reaction for syphilis. One cannot say which diagnosis is correct on the basis of standard serologic tests for syphilis. The abnormally high spinal fluid protein suggests central nervous system disease. It is unlikely that this disease is syphilis because of the negative spinal fluid complement fixation. This disease, whatever it may be, might be responsible for the false positive blood reaction. If, on repeated examination, the spinal fluid protein is still abnormally high and no cause can be found, then antisyphilitic treatment may be given. Treatment is given only because a definite diagnosis cannot be made and to give the patient maximum protection for the future in case she does have syphilis. A total of 6,000,000 units of procaine penicillin in oil with 2 per cent aluminum monostearate, given in 10 doses over a period of two to three weeks, should be adequate therapy.

RETARDED GROWTH

To the Editor:—A 7 year old girl, weight 30 pounds (14 Kg.), height 37¼ inches (95 cm.), has a normal history, with the usual childhood diseases. She has a poor appetite, desiring primarily carbohydrates, and takes about two hours to finish her meal. Her intelligence quotient is above average. Physical examination discloses no abnormalities. The parents are 5 feet 7 inches (170 cm.) and three other children are normal in height and weight. This girl has grown 1 inch (2.5 cm.) and has gained about 4 pounds (2 Kg.) in the past year. The parents are apprehensive concerning the weight and growth of this girl.

C. L. Qualls, M.D., Beaver Dam, Wis.

ANSWER.—*Heredity* and environment apparently do not play a role in this instance, as the parents and other siblings are normal. Although the physical examination disclosed no abnormalities, certain congenital defects may be discovered only by intensive studies. Congenital cardiovascular genitourinary and gastrointestinal hidden defects may stunt growth and development. Consequently roentgenograms of the chest, electrocardiograms, blood chemistry determinations (nonprotein nitrogen, sugar, calcium, cholesterol), gastrointestinal roentgenograms with barium, careful stool and urine examinations (including cultures) and intravenous pyelography might be revealing. Endocrine disturbances, especially of the pituitary, thyroid and ovary, may cause retarded growth. Endocrinological study would include basal metabolism, roentgen studies of epiphyseal center development and possibly estimations of 17-ketosteroids in the urine. The appropriate treatment would depend on the particular glandular disturbance, i. e., a hypothyroid child will grow rapidly when thyroid is administered. Testosterone, 10 mg. daily by mouth over a two month trial period, will often stimulate growth when no other cause can be found. Testosterone *therapy should be stopped when any evidence of stimulating* sex development is noticed.

Anorexia nervosa and other psychogenic disturbances might so interfere with the appetite and intake of food as to stunt growth. Information as to whether this child has been a "behavior problem" and whether she has other emotional difficulties and maladjustments, besides the slow eating habits and poor appetite, would aid in diagnosis. In certain circumstances psychiatric therapy might help. Fatigue may cause this lack of appetite. Shortening school hours, more sleep, moderation in athletics and periods of relaxation before meals might help. Any anemia should be corrected. Recently vitamin B_{12} therapy (10 micrograms or more daily) has caused certain undernourished children to gain and grow rapidly when no other cause could be found. Also occasionally 5 units of insulin given a half-hour before meals will greatly stimulate the appetite.

HEREDITARY ASPECTS OF CELIAC DISEASE

To the Editor:—A four year old girl has been given a diagnosis of celiac disease. She has been to one of the larger medical centers, is being treated and is progressing nicely at this time. The parents (26 and 30 years of age) have been told that they should not have any more children because of the possibility of celiac disease in other offspring. What is the probability?

_M.D._, Texas.

Answer.—Several more or less clearly defined entities have been described in the group composing the celiac syndrome; these are classified by Brennermann as follows: (1) classic celiac disease or idiopathic steatorrhea, (2) starch intolerance, (3) congenital pancreatic insufficiency, (4) chronic mechanical obstruction of the pathways of digestion and absorption, (5) cases presenting or suggesting the celiac syndrome but which do not fall into the above group. Although any one of these may occur in more than one member of a family, only cystic fibrosis of the pancreas (congenital pancreatic deficiency) is a congenital and familial disease, occurring in approximately one fourth of the siblings in affected families. The disease in the described case probably falls in the group of classic celiac diseases. There would not be any contraindication for the parents to have more children unless a diagnosis of cystic fibrosis of the pancreas had been made. Perhaps it would be well to consult further the clinic making the diagnosis.

IDIOPATHIC SCOLIOSIS IN A YOUNG GIRL

To the Editor:—What is the treatment for so-called idiopathic scoliosis of moderate degree involving the dorsal region in a young healthy girl of 11? Is physical therapy ever successful in such cases? Is surgical fusion the only accepted method?

_M.D._, Florida.

Answer.—The accepted treatment for idiopathic scoliosis in a girl of 11 years depends on several factors. Foremost of these are (1) severity, (2) rapidity and degree of progression, (3) location and extent of the curves and (4) degree of compensation. In most cases careful observation over a period of months, and in some cases a few years, is necessary to decide whether or not fusion is indicated. The role of physical therapy in the treatment of scoliosis is questionable, but, if exercises as prescribed by a competent orthepedist or physiatrist are carried out during the period of observation, no harm would be expected from this treatment. If it is decided that sooner or later fusion is necessary, the question of correction and compensation is complicated as is the decision as to the extent to which the spine should be fused. Most orthopedic surgeons have had special training in the management of scoliosis, and it is suggested that the child in question be placed under the care and observation of one having had such training.

HOMOSEXUALITY IS NOT HEREDITARY

To the Editor:—A 19 year old boy, whom I have known since he was 3, recently told me that he is homosexual and wants help desperately. His father is a personal friend of mine. I can say the same of the young man's grandparents and all his near relatives. No sign of this abnormality is in the family to my knowledge. I would like your advice.

_M.D._, Massachusetts.

Answer.—The inquirer intimates that homosexuality is hereditary. This is not correct. It is a developmental arrest in the evolution of a personality. In varying degrees the subject remains psychologically immature in his attachment to and relation with other persons. There are many degrees of homosexuality. It is a normal phase in personality development in early adolescence. It remains a basic feature of every person's life, but he passes through the phase when he is more interested in members of his own rather than of the opposite sex. It becomes pathological in the adult who maintains such a relation for his sexual outlets. Help is available and can be effective for the homosexual person who desires it. The treatment, however, is entirely psychiatric and is nearly always a prolonged undertaking, lasting, even with intensive treatment, many months or even years. For those persons who do not want to change their makeup and even those who are not highly motivated in seeking help, treatment is practically useless.

PERSONALITY CLASSIFICATION

To the Editor:—About 1920 two men in Vienna categorized people into, I believe, sympatheticotonics and parasympatheticotonics. Jung divided people into extroverts and introverts. Now there seems to be a tendency to divide them into "adrenocorticotropics" and "anterior pituitaries." Is there a relation between these three divisions? Are the sympatheticotonics usually extroverted and usually adrenocorticotropics and vice versa?

Paul C. Craig, _M.D._, Reading, Pa

Answer.—Many attempts have been made to classify people according to some assumed functional or anatomic differences None of these, however, has a scientifically sound basis. Although a few persons show certain characteristics suggestive of an overactive sympathetic or parasympathetic nervous system, such a classification is not universally applicable. This is also true regarding introverts and extroverts, since many persons would belong to neither of these groups. There is certainly no evidence that there is a relation between the degree of introversion or extroversion, sympathetic or parasympathetic activity and adrenocorticotropic or anterior pituitary activity.

SCHIZOPHRENIA

To the Editor:—My 36 year old nephew has had schizophrenia since he was 18 years of age. Radical lobotomy, in January 1950, improved his condition substantially. He still shows signs of psychosis, like confabulation, obscene language and tremendous stubbornness. Is there some form of treatment (hormones) that might bring further improvement?

_M.D._, Connecticut

Answer.—From the history as given, it seems unlikely that any appreciable improvement could be effected by hormone or other therapy in this case. In any case of schizophrenia of 18 years' duration, treatment by any of the methods now employed will do little. In the case of some males, diethylstilbestrol has been used in order to make the patient more docile and manageable. However, no great dependence can be placed on this treatment, though theoretically it may have some validity if disturbed conduct seems to be associated with uncontrolled sexual impulses.

NEPHROTIC SYNDROME

To the Editor:—For the past several years I have suffered from the so-called "nephrotic syndrome," with massive edema, urine containing albumin (4 plus), reversed albumin-globulin ratio, hypoproteinemia, blood findings (except for albumin and globulin) within normal limits. Can you inform me as to any of the latest treatments for this condition? I have tried the sodium lactate-potassium acetate treatment and the ion exchange treatment. Is there anything else that may help me? What about ACTH or cortisone?

_M.D._, New York.

Answer.—Pituitary adrenocorticotropic hormone (ACTH) and cortisone have been reported to produce diuresis, loss of edema and general improvement in children with the nephrotic syndrome. This treatment is still highly experimental and should be carried out under expert supervision. Expensive as they are, these hormones are more economical to use than human salt-free serum albumin.

DILATATION OF PUPIL

To the Editor:—Which drug, and in what concentration, is most advisable for enlarging the pupil sufficiently to permit routine eye ground examination by a general practitioner and allow the pupil to return to its normal size and mechanism in the shortest period of time?

R. J. Kent, _M.D._, Savannah, N. Y.

Answer.—Four per cent cocaine hydrochloride, instilled three times at five minute intervals, is probably the simplest procedure for securing maximal dilatation for fundus examination and prompt subsequent narrowing of the pupil and restoration of accommodation. Dilation of the pupil does, of course, precipitate an increase of tension in an eye predisposed to glaucoma, and the tension should be determined with a tonometer beforehand.

ERUPTION OF DECIDUOUS TEETH

To the Editor:—Is there evidence that the deciduous teeth erupt because of pressure of hyperemic tissue beneath their roots? Could this hyperemia account for the rhinorrhea that often accompanies teething? If not, what other mechanism can account for the eruption of teeth?

_M.D._, Louisiana.

Answer.—The exact mechanism of eruption of deciduous teeth is still a controversial problem. Periapical hyperemia probably plays a role in eruption. However, this hyperemia probably is not related to the rhinorrhea and other symptoms that sometimes occur at the same time as teething. A comprehensive review of the theories of eruption was published in the *American Journal of Orthodontia and Oral Surgery* (27:552 [Oct.] 1941).

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 144, No. 18 | Chicago, Illinois | December 30, 1950

Copyright, 1950, by American Medical Association

DOES THE HEALTH OFFICER HAVE STATUS?

Chairman's Address

CARL N. NEUPERT, M.D

Madison, Wis

Health is the leading interest of the reading public for those over 40 years of age. Newspaper and magazine editors recognize this interest and capitalize on it. It is one of the most important issues before Congress. Wherever a group of people gather there is seldom agreement as to the best method for improving health. There are those who advocate placing the responsibility for providing good health for all in the hands of the federal government. Others have recognized serious dangers in such an approach—danger not only to America's democratic form of government but in the strong possibility that such a system would not result in health improvement, the very thing it is intended to accomplish.

The only sound plan for reducing the load of sickness is one which prevents illness. Compulsory health insurance cannot be expected to accomplish this. The magnitude of the administrative machinery incident to such a plan would stifle the development of plans aimed at the prevention of illness. The platform of the American Medical Association highlights the extension of voluntary health insurance and the promotion of nationwide public health administration on the local level. Voluntary health insurance is moving ahead rapidly with physician support, but are doctors really pushing the organization of full time local health departments? Lack of support by physicians on an individual basis is one of the obstacles to progress in public health.

One of the more serious of these obstacles is the shortage of trained medical public health administrators, traditionally referred to as health officers. Limited opportunity for financial gain as compared with that from the private practice of medicine is one reason for this shortage, but more important is the scant recognition by many physicians of the status of the health officer. He has standing with the general public. People are aware of the substanial contribution of public health departments in the reduction of communicable diseases and environmental sanitation hazards and in the advancement of maternal and child health.

The American Medical Association has recognized the special status of the trained health officer, and the specialty Board of Preventive Medicine and Public Health has been established, but the rank and file of practicing physicians have not bothered to look into the matter thoroughly and apparently still regard this developing field of medicine rather lightly. This appears to be true of many in high places in medicine, most of whom were graduated from medical school some years ago when preventive medicine and public health occupied a minor position in their training.

Most physicians will agree that public health has proved its value in the prevention of diseases, the prolongation of life and the promotion of physical and mental efficiency. If this is recognized, one must recognize the part that the health officer has played. In my state it was a practicing physician and his county medical society, with the backing of the state medical society, who convinced the state legislature of the need for a state board of health nearly 75 years ago. The recognition of need for this unit originated not with the general public but with physicians. These physicians saw clearly the need for a central body by which the perplexing problems dealing with widespread epidemics and with sanitation could be studied and solved. The rural areas, then comprising nearly all of the state, were in desperate need of help. Eventually they got it as a result of action based on reports of illnesses and deaths that were gathered and analyzed by the state board of health.

It is a matter of record that the board of health has taken every advantage of its position as an official body charged with "responsibility for the health and life of citizens" to push immunization so that smallpox, diphtheria and whooping cough, formerly killers of hundreds of children in the state, are practically nonexistent today. This has been accomplished by direct appeal to parents with the cooperation of practicing physicians. The provision of safe public water supplies and sewage disposal has now advanced so that typhoid has practically been eliminated.

The older practicing physicians have witnessed this tremendous change—and it has been tremendous. Today medical students in my section of the country have little or no opportunity even to see a case of smallpox or diphtheria or typhoid before graduation and have little prospect of seeing them in their practice. These are accomplishments largely creditable to the efforts of public health departments. They are familiar to the public. Similar developments differing somewhat from state to state have taken place throughout the country.

Tuberculosis has responded to the combined efforts of physicians, voluntary agencies and health departments. No attempt is here made to evaluate the effect of the various factors such as advances in surgical treatment, the antibiotics, efforts of voluntary agencies and isolation in sanatoriums in bringing about this result. Some states have relatively high rates of tuberculosis morbidity and mortality, coupled with limited facilities and resources with which to combat them, while others are more favorably situated. These latter have low rates, adequate sanatorium facilities available

---

Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 30, 1950.

to all citizens at public expense and relatively few exposures to infectious cases. As a result, there is a prospect that tuberculosis will be in a position of minor importance as a cause of morbidity and mortality in these states in the near future. It is significant that in these states there have been aggressive, effective tuberculosis control programs carried on by public health departments.

The remarkable reduction in maternal mortality is another example of the result of good teamwork between the official health agencies and the practicing physicians. In my state, Wisconsin, 99.9 per cent of all deliveries are performed by physicians and the maternal mortality rate has been reduced from 3.9 per 1,000 live births in 1936 to 0.6 in 1949. Similar accomplishments can be cited for metropolitan areas such as New York City and for states where health department functions are on a county basis.

In Wisconsin a significant factor in that reduction has been the activity of the state health department. No attempt is here being made to evaluate the weight of various factors responsible for the low maternal death rate. It is in order, however, to call attention to certain of these factors as a part of the evaluation of the importance of health department activities in improving maternal health. The state health department has repeatedly called the attention of physicians to the preventable hazards of pregnancy and encouraged pregnant mothers to avail themselves of the guidance and care of their physicians early in pregnancy. Without this emphasis the results might have been much less favorable. From analysis of data taken from birth certificates and death certificates, specific risks were highlighted, such as those associated with exceptionally high incidence of cesarian section occurring in some localities, the need in smaller hospitals for having plasma or blood at hand to combat shock resulting from hemorrhages associated with delivery and the adverse effect of precipitate labor due to drugs or manual interference. The health department produced data on the risks; the practicing physicians saw to it that the information was the basis for action.

Work on other public health problems is just beginning. The problems of excessive numbers of premature births and large numbers of neonatal deaths and the problems associated with an aging population, such as the chronic diseases, are prominent. Even though proved technics for attacking problems like heart disease, cancer and diabetes are now available only to a limited extent, they are in the process of development and give promise of good results. Screening technics that have been in operation in some areas have uncovered appreciable numbers of unsuspected cases of chronic disease in the early stages while prospects for recovery are greatest. Inauguration and successful operation of these technics require the cooperation and "carry through" of a full time local health department to supplement the key figure, the practicing physician.

Those who are best qualified to give an opinion are agreed that coverage of the country with full time local health departments is a necessity if physicians are to make real progress in the problem of reducing the number of sick persons in need of medical care. Among other things, they are aware of the shift to greater utilization of hospitals for diagnosis and care of patients and the accompanying reduction in contact of the physician with the family in the home. The public health nurse has become a valuable asset to the physician and as a result to the family. She can supply him with valuable information on family living conditions that is important to his management of the illness.

The American Medical Association is committed to expansion of local health councils as an integral part of its program to find an answer to the need for improving the health of those living in rural areas. The Association was the first national health agency to endorse complete coverage of the nation with full time local health departments. Practicing physicians have a stake in the success of that development. To bring it about, there must be trained medical health officers to head these local health departments. There is at present no reservoir of trained public health physicians to do that bigger job. There is a serious shortage of health officers to fill existing vacancies.

Among the factors which appear to contribute importantly to that shortage is the lack of enthusiasm and of appreciation by practicing physicians for the possibilities for constructive service in the work of health officers. This is held to be due largely to lack of information. There may still be a carryover of the contempt for the political appointee, often a semiretired physician, who had no special training for the complex duties he assumed. According to Smillie[1] that period ended about 1925. Whatever the reasons for its existence, there is need for a solution to the problem of shortage of health officers. The status of the health officer is of concern to all physicians.

JUVENILE DELINQUENCY

Chairman's Address

M. M. NICHOLSON, M.D.
Washington, D. C.

Mr. J. Edgar Hoover, Director of the Federal Bureau of Investigation, said on May 19, 1950:

> The United States is sadly neglecting its most precious assets, the citizens of tomorrow. There is a rapidly rising rate of crime in youth. Fifty per cent of the crimes against property are committed by people under 20 years of age. . . . Perhaps the disappearance of the woodshed of my generation has had its effect. . . . There is no satisfactory substitute for discipline in developing character. . . . Any city in the country would strike a telling blow against crime within 24 hours if the people had the will and determination to eradicate the breeding places of crime.

The juvenile delinquent is not a type of child. He has gone astray as the result of insufficient guidance and care. The juvenile delinquent is not depraved; he is just deprived.

MENTAL AND PHYSICAL HEALTH

There is disagreement among the many surveys of physical health, but the majority of careful studies accept the fact that the health history does not influence delinquency. Delinquents may have carious teeth, because they were too difficult for the dentist to manage, or rickets, because the parents did not recognize the need for vitamins. The Gluecks found that only one sixth of the boys taken to the Judge Baker Foundation were in poor physical condition.

Of 4,000 repeated offenders appearing in the juvenile courts of Chicago and Boston, over 70 per cent were mentally normal. Emotional maturation may be low,

---

[1] Smillie, W. G.: Preventive Medicine and Public Health, New York, Macmillan Company, 1946.

Read before the Section on Pediatrics at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950

but we must take into consideration that a test done soon after placement in an institution is influenced by the special situation in which the child is at the time.

COST OF CRIME

Americans have the reputation of never wasting money. Shall we consider the cost of crime? The Wickersham Committee (1931) estimated it as 15 billion dollars a year. This was five times the total expenditure for education that year. But this money value pales when we consider that the most pernicious waste is not material but moral. Crime leaves a trail of death and disability through disease and violence. What kind of integrated social organism can the America of the future hope for, if so many of its future citizens display so early in life a tendency toward, or actually exhibit, disregard for law and order?

ECONOMIC GROUP AND NATIONALITY

The idea that juvenile delinquency is more prevalent among poor children has been corrected. Some statistics taken from institutionalized children gave a false impression, since the children of wealth are not placed in institutions. In the first place, wealth and social position provide a certain degree of immunity against arrest. In the second place, when financial restitution is made, the damage is usually not even reported to the police. Some statistics were taken by area. This means that one square mile in a poor neighborhood with a dense population is numerically compared with a wealthy neighborhood where space is occupied by gardens, lawns and few children.

Rockless and Smith found that foreign-born white children show a smaller rate of delinquency per population unit than native-born white children.

HOME CONDITIONS

The home has the child completely from birth until 5 years of age. After the child starts school, he is at home 16 of the 24 hours of a day. Thus the home may outweigh the influence of the school. Shelden and Eleanor Glueck found that nine tenths of the delinquents studied came from broken or poorly supervised homes. The broken home is one of the weightiest factors in juvenile delinquency, because it leaves the child with no attachment on which to grow; he is helplessly adrift on the rough sea of life.

Even if the home is broken, the child with brothers and sisters will tell you he cannot disgrace his family. The larger the family the more stable the home life. A Metropolitan Life Insurance bulletin for February 1950 showed that there were 44 divorces per 1,000 couples without children, 15.3 divorces when the couple had one child and 4.6 when they had four or more children. It is estimated this 4.6 per cent would be under 1 per cent if children from prevous marriages had not been counted, thereby including the few persons who had four or more marriages with one child each.

CORRECTION OF JUVENILE DELINQUENCY

Family Life.—Parents must be assured that rearing a family is the highest vocation. Children should not be deprived of that solid background which is given by a home and the protective support which is given by parental guidance. The child wants absolute protection with no frustration; hence he must have confidence that his parents will guide him the right way. The view from the top of Niagara Falls is enjoyable only if one has the protection of a strong and reliable rail on which to lean. A child needs protection and guidance until he has acquired and is prepared to use his own judgment. The child who says to a parent, "Well, everyone else is doing it," and thereby succeeds in changing the parent's order, will lose confidence in the parent's decision, because the fact that someone else does wrong is the cause of sorrow and can by no means justify what a young person unquestionably knows is wrong. The "zoot suits" and gangs are just the outward signs of insecurity. They are just "whistling in the dark." The child who has the love and protection of home laughs at these other children. They have to have a gang because they do not have a normal home. I have talked to a gang leader who would gladly have turned over all his leadership to a father in whom he could place responsibility.

Divorce.—The doctor who will take the time to study divorce and to explain its problems to his patients can probably reduce divorce among them 75 per cent. However, if the pediatrician realizes that he cannot help the couple, he can suggest that they go to the "Divorcées Anonymous," an organization recently founded in Chicago in which the couple contemplating divorce are talked to and reasoned with by a person who has gone through a similar trial which ended with a divorce and who later regretted such action. An example of this procedure is found in the case of Mrs. M. Mrs. M's husband spent much of his salary in gambling. She therefore planned to divorce him. Someone told her about "Divorcées Anonymous," and she went to the local office of the association. Here she found Mrs. X (who had divorced her husband for gambling, drinking and infidelity). Nevertheless, she told Mrs. M that she would rather have him even under these conditions and strive to help him rather than ruin the children's lives in a broken home. This made Mrs. M realize that her husband was not so reprehensible after all, so she went home determined to stay with him and help him all she could, thus saving her home from dissolution. Perhaps this will be the outcome in some cases confronting us.

Religion.—The delinquency committee of the White House Conference reported that 37 per cent of 2,191 delinquents studied had absolutely no church connections. Most of the others had little religious training.

A foreign diplomat made the following statement to me: "There is no possibility of trouble in my country because only 1 in 7,000 is a communist." Within 48 hours, his country had joined the satellite nations. Why do we, a nation built on a firm religious foundation, allow the small number of atheists to prevent religious training of our children? George Washington said, "Reason and experience both forbid us to expect that morality can prevail in exclusion of religious principles."

When Columbus landed, his first act was to pray. When those seeking refuge landed in Massachusetts and in Maryland, their first act was prayer. The entire South and Southwest was settled by religious groups who prayed. George Washington frequently prayed, and Lafayette and Washington went together to church in Philadelphia to ask God's guidance during the Revolution. "In God We Trust" was placed on our money. Our testimony in court begins with "I do solemnly swear." The Congress of the United States opens with prayer. Why deprive our children of the joy of prayer or the pleasure of asking the old fashioned "blessing" before meals? The child who has God to rely on is never lonely, lost or in trouble.

Dr. Joseph Hasslein said, "Religion in the home, religion in the school, religion in the heart of every true patriotic man and woman throughout the land—there is the ultimate solution of our problem, and the only genuine remedy for juvenile delinquency and adult crime. All other means are mere palliatives, when this is omitted, or when even—God forbid—it is knowingly slighted. Defying the Divine Will, how can anyone be expected to obey mere creature laws, except under instant pressure?" If the pediatricians of America would determine to stop juvenile delinquency, they would succeed.

ABSORPTION AND CLINICAL USE OF PENICILLIN PREPARATIONS GIVEN IN LARGE ORAL DOSES

A Cooperative Study Utilizing Discontinuous Therapy

PAUL BUNN, M D.
Syracuse, N. Y.
E. R. CALDWELL, M D.
Washington, D. C.
CHARLES ADAIR, M D
Syracuse, N. Y.
MARK LEPPER, M.D.
and
HARRY DOWLING, M D
Chicago

For several years, it has been recognized that penicillin administered orally can be used effectively in the treatment of many infections commonly treated by parenteral administration.[1] Several factors have delayed more widespread use of penicillin by mouth. Since only from 20 to 33 per cent of an orally administered dose of penicillin is absorbed from the intestinal tract,[2] this route was originally considered wasteful of an expensive material. Moreover, since the absorption of the drug is limited to a small segment of the gastrointestinal tract, the period for absorption is short. This, coupled with rapid excretion, causes quite irregular or transitory demonstrable serum concentrations, lasting only from two to four hours, if small doses are employed.[2] The presence of food in the gastrointestinal tract also interferes markedly with the efficient absorption of orally administered penicillin with the result that the drug has had to take precedence over meals in a daily schedule, an arrangement that is usually quite inconvenient. This combination of factors has made the oral use of penicillin less popular than would appear to be warranted in view of its established effectiveness in a number of infections. Because of the recent success of discontinuous therapeutic regimens[3] and because penicillin for oral administration is now less expensive than heretofore, therapy schedules in which large doses of penicillin are given two or three times a day have been investigated.

In this paper there is presented evidence that 500,000 units of various penicillin preparations administered by mouth give a moderately high peak concentration in the blood followed by a lower but consistent level for the next five to eight hours. This large single dose is administered two to three times a day, at eight to 12 hour intervals, without great increase in cost to the patient. Furthermore, the regimen eliminates the difficulty of arranging meals around penicillin schedules as well as assuring the patient a good night's rest. Finally, evidence is presented that this therapeutic schedule is clinically satisfactory.

PLAN OF STUDY

Several penicillin preparations for oral administration have been used in this study (table 1). The majority of patients and subjects received 500,000 unit tablets of crystalline potassium penicillin G. Before a clinical therapeutic trial was made, 40 normal or convalescing subjects were given a 500,000 unit dose orally after an overnight fast, and determination of serum concentration was made at a half, one, two, three, five and eight hours by the method of Randall and his associates (Washington)[4] and by the Tompsett modification of Rammelkamp's serial dilution technic (Syracuse)[5] (table 2). Twenty-six other subjects received 200,000 or 300,000 units, and blood levels were similarly studied and therapeutically effective levels were demonstrated. After uniform absorption and therapeutically effective levels were demonstrated, 104 patients were treated.

Therapeutic dosage in somewhat over half the cases was 500,000 units at 6 : 00 a. m., 3 : 00 p. m. and 10 : 00 p. m. The remainder of the patients received the same amount twice a day, at 10 :00 a. m. and 10 .00 p. m. Both schedules allowed the drug to be given at a time when the stomach was empty, yet with a minimum of inconvenience to the patient and/or the nursing staff. The schedules were changed somewhat for small children to fit feeding and sleeping habits. The dosage was essentially the same in all cases, regardless of severity of infection

SERUM CONCENTRATIONS OF PENICILLIN

The serum concentrations of penicillin in 40 patients given 500,000 units of penicillin orally after an overnight fast were studied (table 2). Serum concentrations in only three subjects were determined at 40, 60 and 120 minutes. At 40 minutes, the average level was 0.8 unit per cubic centimeter. Peak concentration in all was observed at 60 minutes, with an average level of 1.7 units per cubic centimeter. At the end of two hours, all three subjects had a fall from the peak level, the average being 0.43 unit. Serum concentrations were then determined on 40 patients at three hours. The average concentration was found to be 0.19 unit per cubic centimeter, with 95 per cent of the subjects showing demonstrable levels, that is, at least 0.03 unit or higher. At the end of five hours, of the 31 serums tested, 79 per cent showed levels of 0.03 unit or higher, the average being 0.09 unit per cubic centimeter. At the end of eight hours, of 35 serums studied, 49 per cent showed concentrations of 0.03 unit or higher, the average being 0.034 unit per cubic centimeter. Serum levels in 26 subjects following 200,000 to 300,000 units of penicillin administered orally in the fasting state were studied. Again peak concentrations were observed at 60 minutes in the vast majority of the patients. None had a demonstrable level at eight hours. Seventy-five per cent of the sub-

---

With the technical assistance of Leonard Canarile, Syracuse, N Y, and Myrtle Meyer and Pearl Roberts, Washington, D. C

From the Departments of Medicine, School of Medicine, State University of New York, Medical Center at Syracuse, and the George Washington University School of Medicine, Washington, D C.

[1] Finland, M.; Meads, M , and Ory, E M : Oral Penicillin, J. A M A **129**: 315 (Sept 29) 1945. Dowling, H F ; Rotman Kavka, G , Hussey, H. H , and Hirsh, H L : Treatment of Pneumococcic Pneumonia with Oral and Intramuscular Penicillin, Am J M Sc **213**: 413, 1947 Bunn, P A ; McDermott, W.; Hadley, S J , and Carter, A C . Treatment of Pneumococcic Pneumonia with Orally Administered Penicillin, J A M. A **129**: 320 (Sept 29) 1945. Gyorgy, P.; Vandegrift, H N., Elias, W ; Colio, L G ; Barry, F. M , and Pitcher, J. D . Administration of Penicillin by Mouth. Preliminary Report, ibid **127**: 639 (March 17) 1945. Robinson, J A ; Hirsh, H L , and Dowling, H F.: Oral Penicillin in Treatment of Various Bacterial Infections, Am J Med **4**: 716, 1948

[2] McDermott, W., Bunn, P.; Benoit, M ; DuBois, R , and Reynolds, M Absorption, Excretion and Destruction of Orally Administered Penicillin, J Clin. Investigation **25**: 190, 1946.

[3] Tompsett, R ; Timpanelli, A ; Goldstein, O , and McDermott, W : Discontinuous Therapy with Penicillin, J A M A. **139**: 555 (Feb 26) 1949 Hamburger, M ; Berman, J. R ; Thompson, R T , and Blankenhorn, M A : The Treatment of Pneumococcal Pneumonia by Penicillin in Aqueous Solution at Long Intervals: Effectiveness of 2 Doses in First 24 Hours Followed by Single Daily Injections, J. Lab & Clin Med **34**: 59, 1949

[4] Randall, W. A ; Welch, H , and Knudsen, L.: Methods of Testing Antibiotic Substances and Limitations Involved, J. Am Pharm A (Scient Ed) **35**: 102, 1946

[5] Tompsett, R : *Personal communication to the authors*

jects had demonstrable levels at five hours (table 2). Average blood concentrations after the two doses are shown in the chart. Also shown is a comparable graph of levels after a large parenterally administered dose of penicillin.

Table 1.—*Type of Vehicle in Which Penicillin was Administered to 104 Patients with Infections*

Penicillin, Type and Vehicle	Number of Patients	Number of Infections			Results			Comment
		Pneumococcus	Beta Streptococcus	Miscellaneous	Satisfactory	Poor	Complications	
G in orange syrup *	10	6	1	3	9	1	1 slow resolution	Easy for children to accept
Procaine tablets †	8	5	3	..	6	2	2 slow resolutions; 1 with febrile relapse	....
G tablets †	67	17	32	18	62	5	1 slow clearing of skin lesions; 1 febrile relapse with slow resolution; 3 treatment failures	....
G in tap water ‡	10	5	3	2	8	2	1 slow resolution; 1 death	....
"O" in tap water §	8	4	..	4	8	..	....	Lowest average blood levels ‖
Aluminum tablets ¶	4	..	2	2	4	..	....	Highest average blood levels ‖
G in cherry syrup #	2	1	1	..	2	..	....	Easy for children to accept
Totals	104 **	..	..	..	94 ** (90%)	10 (10%)		

---

* Smith, Kline & French Laboratories. † Bristol Laboratories, Inc. and Pfizer, Chas. & Company, Inc.
‡ Pfizer, Chas. & Company, Inc. and Bristol Laboratories, Inc. § The Upjohn Company.
¶ Hynson, Westcott & Dunning, Inc. # Bristol Laboratories, Inc.
** Five patients received two types of penicillin.
‖ Variations in blood concentration following each preparation are so narrow as to be insignificant.

Table 2.—*Blood Concentrations Following Administration of Penicillin Orally in Fasting State*

Time	40 Minutes		1 Hour		2 Hours		3 Hours		5 Hours		8 Hours
Dose in Units	500,000	200,000 300,000	500,000	200,000 300,000	500,000	200,000 300,000	500,000	200,000 300,000	500,000	200,000 300,000	500,000
Range of levels (units/cc.)	0.07-1.6	0.065-1.01	0.75-3.0	0.08-1.15	0.05-0.75	0.07-1.14	0.03-0.5	0.075-1.01	0.02-0.5	0.03-0.24	0.03-0.25
Average level (units/cc.)	0.8	0.45	1.7	0.46	0.43	0.25	0.19	0.15	0.09	0.06	0.034
Per cent and number of specimens with levels greater than 0.03 unit/cc	100% (3)	96% (25 of 26)	100% (3)	96% (25 of 26)	100% (3)	95% (19 of 20)	95% (38 of 40)	95% (19 of 20)	79% (25 of 31)	75% (9 of 12)	49% (17 of 35)

Table 3.—*104 Patients with Infections Treated by Penicillin Administered by Mouth Two to Three Times a Day*

Disease	No. Patients	Age, Yr.	No. Days Treatment	Results			Comment
				Satisfactory	Slow Resolution	Treatment Failure or Complications	
Pneumococcic pneumonia	30	1½-91 (av. 43)	3-18 (av. 6½)	26	2	2 (1 death)	Death 4 hours after start of therapy; improvement of pneumonia in 1 patient only with sulfadiazine; 7 with positive blood cultures
Bronchopneumonia	7	2-57 (av. 40)	3-12 (av. 6)	5	1	1	Considered necessary to change to penicillin intramuscularly after 48 hours in 1 child
Scarlet fever	18	½-19 (av. 4½)	5-18 (av. 7)	16	1	1	In 1, development of nonspecific bronchopneumonia and change in route of therapy; slow subsidence of rash in 1
Streptococcic							
Septic sore throat	13	1-52 (av. 19)	2-12 (av. 7)	12	1	..	Subsidence of tonsillitis only after 7 days in 1
Tracheobronchitis	1	38	4	1	..	..	....
Erysipelas	3	45-74	5-11 (av. 7)	2	1	..	Slow resolution but with eventual complete clearing in 1
Impetigo	2	11-15	7	2	..	..	....
Cellulitis (nose, leg)	2	78-80	4-7	2	..	..	....
Staphylococcic infections	6	33-86 (av. 64)	4-7	6	..	..	2 urinary tract infections; 2 cellulitis of arm and leg; 2 abscess of finger and leg
Miscellaneous infections (cause unknown)	22	1-63 (av. 33)	3-8 (av. 5)	22	..	..	8 acute pharyngitis; 5 Vincent's disease of mouth and gums; 2 acute sinusitis; 2 acute otitis; 3 abscesses—urethral, finger, eye; 2 cellulitis
Totals	104			94	6	4	

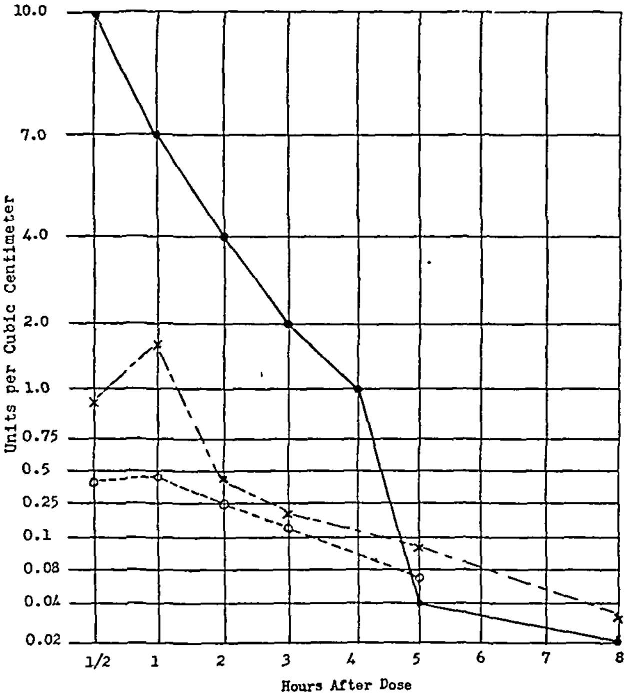
RESULTS OF TREATMENT

Oral administration of penicillin was used in the treatment of 104 patients, with results shown in table 3. Types of vehicles in which the penicillin was administered are shown in table 1.

Thirty patients with lobar pneumonia were treated, with good response in 26 (table 3). Fourteen of the 30 had typed pneumococci in the sputum; six had pneumococci, untyped or classified, and from ten, who had typical clinical lobar pneumonia, pneumococci could not be or were not isolated. Of the 30 patients treated, the temperature returned to 99 F. or below by the end of 30 hours in 24 and to normal before the third day in the other six. Serial roentgen examinations of the chest were made on all, and clearing of process within three weeks was noted in 26. Slow resolution occurred in two, and eventual clearing in these was not completed until 40 days. The course of treatment was from three to 18 days and averaged 6½ days.

One patient, moribund at the time therapy was started, died shortly after the first dose of penicillin. Another patient, a man aged 59, had a pneumococcic infection which failed to respond as expected. A change to the intramuscular route of penicillin administration also failed to alter the clinical disease, and eventual, albeit gradual, improvement followed sulfadiazine therapy.

Seven patients with bronchopneumonia are included in the series. All seven had pulmonary infiltrations by roentgenogram, although solid consolidations were not seen. Bacteriologic findings were not specific. All the patients were acutely ill. Because no therapy other than orally administered penicillin was prescribed, the group is worthy of inclusion in the series. Five of the seven responded in impressive fashion with febrile crisis to normal within 24 hours and complete roentgenographic clearing within three weeks. One patient, a child 1½ years of age, failed to respond until penicillin was administered parenterally after 48 hours, and this case must be considered to represent a failure of oral therapy. The response with intramuscularly administered penicillin was impressive. The remaining patient, aged 91, had a reasonably good over-all response, although no crisis was observed and resolution was delayed.



Comparison of blood concentrations following single doses of orally and intramuscularly administered penicillin. The dash line with crosses indicates 500,000 units orally (average of 40 patients). The dash line with circles indicates 300,000 units orally (average of 25 patients). The straight line indicates 300,000 units intramuscularly (average of 3 patients). All orally administered penicillin was given in a fasting state.

Four patients of the 37 had febrile relapses (temperatures 101 to 102 F.) on the third to the seventh day. Each episode persisted for from 24 to 48 hours and disappeared spontaneously. No extension of the pneumonic process was noted, and therapy was not changed in any.

Eighteen patients with scarlet fever were treated (table 3). They ranged in age from 6 months to 19 years with average age of about 4½ years. Sixteen of the 18 made a good response without complications. In one child, 19 months of age, after an initially satisfactory response, bronchopneumonia of unknown origin developed while he was receiving penicillin orally, and a change to intramuscular administration of crystalline penicillin was considered necessary. Thereafter he made an uneventful recovery. The eighteenth patient had a proper clinical response, but the expected prompt disappearance of rash did not take place. One child, 2½ years old, not included in the series, was unable to retain the tablets by mouth. He received only one day of therapy, was changed to intramuscular injection of penicillin, and made an uneventful recovery. Complications, such as otitis media, rheumatic fever or nephritis, did not develop, at least during the observation period. Therapy extended from five to 18 days. In 14 patients therapy was less than seven days. Approximately 7,000,000 units of penicillin was required on this treatment schedule.

Septic sore throat in 13 patients, with and without acute tonsillitis, was treated (table 3). In all patients, group A beta hemolytic streptococci were isolated from the throats; in none was there abscess formation. Ages ranged from 1 to 52 years, the vast majority of patients being over 20 years of age. For 10 patients, the duration of therapy extended from two to seven days. Most patients received the drug for only four or five days. The results of therapy were excellent in 12 of the 13 patients. Tonsillitis subsided within 48 hours; defervescence occurred within 24 hours, and clinical improvement was satisfactory within four days in this group. In only one patient was there noted slow improvement in the acute tonsillitis. Complete recovery was delayed until the tenth day.

Eight other patients with beta hemolytic streptococcus infections were treated and response in seven was impressive. There were three patients with erysipelas, two each with impetigo and cellulitis (on the nose and leg, respectively) and one with acute tracheobronchitis without pneumonia. Both Streptococcus and Staphylococcus aureus were recovered from the two patients with impetigo. Erysipelas failed to improve until after the sixth day in one woman, aged 74, although her lesion healed without complication thereafter. Evaluation of both cases of cellulitis was difficult because of underlying pathological lesion (varicose veins and skin carcinoma), but in each the infected skin improved in satisfactory manner, though only temporarily.

Thirty-nine patients with beta hemolytic streptococcus infections were treated. In none were there purulent complications. In 90 per cent of the patients the therapeutic response was excellent, although in only one case was oral therapy apparently inadequate.

In table 3 are summarized data on 28 patients with staphylococcic and miscellaneous infections treated with penicillin administered orally two or three times daily. Eminently satisfactory responses were noted in 27 patients. In only one patient with acute pharyngitis, from whom no organisms had been isolated, was there a poor immediate response. Pyuria and/or bacilluria disappeared within five days or less in all patients with urinary tract infections. Both abscesses healed with surgical incision. Cellulitis with pus formation in both patients cleared promptly. Evaluation is difficult in one of these two patients because of an underlying carcinoma, but subsequent surgical excision of this was possible, with clearing of the surrounding inflammation. Although the causative agent in eight cases of acute pharyngitis was not bacteriologically proved, there was response within four days and no complications were observed. Good responses of five cases of Vincent's infection of mouth and gums, two cases each of acute otitis media and sinusitis, five abscesses and cellulitis of the leg in two patients were noted. Surgical drainage was performed as necessary in the majority of abscesses.

Toxic reactions were noted in two patients. In one a moderately severe inguinal and perineal dermatophytid developed after a single dose, and the other had nausea and vomiting. The case of neither patient is included in the therapeutic series because less than one day's therapy was administered. Another patient, whose case is included in the series, had moderately loose stools while on penicillin therapy.

COMMENT

Pharmacologic data and results of clinical studies presented here have been obtained at two institutions. Because clinical material from one or the other was considered inadequate if presented alone, observations from each have been combined. Certain variations in technics have been employed in measuring serum concentrations of penicillin, and patients received different nursing attention. The observations, both pharmacologic and clinical, are sufficiently alike, however, to warrant this combination of results. It must be emphasized that all data were compared only after completion of the entire study. This independent performance of both the pharmacologic and the clinical investigations makes the material all the more valid and valuable.

There are two major differences between the two studies. In Syracuse, seven varieties of carrying agents for penicillin were used in both the clinical and the laboratory studies. As no single one of these was superior to the other, either in therapeutic response of the patient or in blood levels of penicillin, it seems proper to include the results in a single group. The other difference is that a twice daily regimen of 500,000 units penicillin was virtually always employed in Syracuse, whereas in Washington the material was given three times a day. In general, then, the latter patients (56 of the 104) received more penicillin.

The question naturally arises concerning the value of a third dose of penicillin each day for therapy of many infections. In this series, both regimens have proved satisfactory and whether or not the third dose is necessary is less important, perhaps, than the extra security which it allows.

As has been pointed out many times in the past, the vehicle in which penicillin is carried is unimportant, and no single material has proved more efficacious than penicillin given in tap water. It is important, however, to so time the administration of the tablet or fluid that the stomach is relatively empty. Assurance of best absorption is thus best gained. There is no delayed absorption of procaine penicillin in tablet form, the pharmacologic properties of this salt being identical with that of penicillin G.

The preparation labeled penicillin "O" (table 1) deserves comment. The material is an allyl salt of penicillin and presumably has the unique property of having no cross immunity reactions with crystalline penicillin G or any of its salts. Although it cannot be stated from the studies described in this report that it does have this advantage, in at least four other instances it has proved to be useful for persons suffering from delayed type of hypersensitivity reactions due to the administration of penicillin G. In all of these, penicillin "O" was successfully and safely substituted in the presence of either angioneurotic edema or generalized pruritic macular rash. The purpose of its use in this study was to determine its pharmacologic and therapeutic efficacy. In general, periodic blood concentrations follow the curve expected from other penicillin preparations but are somewhat lower. This difference, although minor, was consistent in all subjects. In the dosage employed for patients with infections, the results in all eight patients were identical with those observed when other preparations were used. It is appreciated that most infections are usually overtreated with penicillin.

All patients in this series had normally functioning gastrointestinal tracts at the time oral therapy was instituted. It must be emphasized that in the case of any patient in whom there is gastric dilatation or intestinal hypermotility, it is not advisable to administer penicillin by mouth. Absorption may be so impaired in either circumstance that proper therapeutic response may not be obtained. In general, it is true that the attainment of adequate blood concentrations of penicillin and the maintenance of therapeutic levels is dependent almost solely on the integrity of the gastrointestinal tract.

SUMMARY

Forty normal or convalescent hospital subjects were given 200,000 to 500,000 units of penicillin in a variety of vehicles after an overnight fast, and serum concentrations of penicillin were determined periodically over an interval of eight hours. In approximately 50 per cent of the patients receiving 500,000 units, concentrations above 0.03 unit of penicillin per cubic centimeter of serum were noted at the end of eight hours.

A total of 104 patients with infections were treated. Satisfactory therapeutic response after 500,000 units of penicillin given twice or three times daily was observed in 94 of the patients (90 per cent), and in 6 others (6 per cent) somewhat slower than expected resolution of the infectious lesions occurred. Complete cure eventually took place in the latter patients without change in therapy.

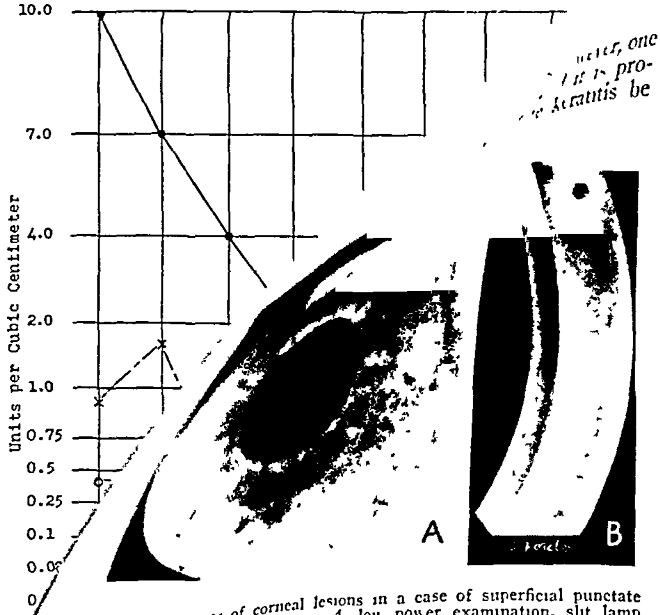
Regimens in which at least 500,000 units of penicillin is administered twice or three times a day are feasible in most cases in which penicillin is indicated, except bacterial endocarditis, meningitis and staphylococcic sepsis. In the staphylococcic sepsis and in certain other infections in which high serum levels of penicillin are required or in which penicillin cannot easily penetrate into the involved area of inflammation, oral therapy is not advocated.

Oral therapy in the majority of cases of infections caused by micro-organisms susceptible to penicillin is safe, easy and reasonably inexpensive. When the drug is administered only twice or three times a day, scheduling of doses to avoid meals is no longer a problem.

three weeks was noted in 26. Slow resolution occurred in two, and eventual clearing in these was not completed until 40 days. The course of treatment was from three to 18 days and averaged 6½ days.

One patient, moribund at the time therapy was started, died shortly after the first dose of penicillin. Another patient, a man aged 59, had a pneumococcic infection which failed to respond as expected. A change to the intramuscular route of penicillin administration also failed to alter the clinical disease, and eventual, albeit gradual, improvement followed sulfadiazine therapy.

Seven patients with bronchopneumonia are included in the series. All seven had pulmonary infiltrations by roentgenogram, although solid consolidations were not seen. Bacteriologic findings were not specific. All the patients were acutely ill. Because no therapy othe



one
pro-
keratitis be

Appearance of corneal lesions in a case of superficial punctate of three years' duration A, low power examination, slit lamp microscope; B, high power slit lamp and corneal microscope showing granular nature of the opacity.

reserved for it alone. Although this entity has been known to occur in most parts of the world, no clearcut description of it appears in any of the current textbooks and references to it in the current literature, with the exception of one description in an article by Braley,[2] have failed to differentiate it sharply from other forms of nonspecific punctate epithelial or subepithelial keratitis.

THE CLINICAL ENTITY

Since 1930 twenty-six typical examples of superficial punctate keratitis have been studied by me in the states of Iowa, New York, Florida and California. In general they have presented identical clinical characteristics and have run the same course, indicating the existence of a clinical entity which may be described as follows:

Clinical Picture.—The disease is essentially epithelial keratitis characterized by multiple, discrete, epithelial

monic process was noted, and therapy w y few in
in any. three to as

Eighteen patients with scarlet rea, although
(table 3). They ranged in age The individual
years with average age of abo han the punctate
the 18 made a good resp pithelial keratitis, are
In one child, 19 months arger ones can be seen
factory response, bron slit lamp is necessary for
developed while he ones. Each opacity, when
a change to intra ver objective, can be seen to
penicillin was meration of smaller punctate
made an un he lesions stain variably with
had a pro as mercurochrome; the majority
disappe some retain it either feebly or not
2½ slit lamp the lesions are seen to be
to al and definitely nonulcerative in char-
gh partial desquamation of the epithelial
occur in the more deeply staining opacities
ssential lesion, however, is an intraepithelial
pacity with little if any subepithelial edema and no subepithelial infiltration. The epithelium between the opacities appears to be normal except during severe exacerbations, when there may be a minimal amount of epithelial edema between close-lying foci. In most cases the opacities are evanescent, their location varying from week to week, but in some the pattern remains relatively fixed over a period of months.

The keratitis is the most important lesion of the disease, but it may be accompanied by a mild catarrhal conjunctivitis with predominant involvement of the bulbar conjunctiva but without papillary hypertrophy or exudate. The conjunctival hyperemia increases during the periodic exacerbations of the disease but is never pronounced. Secondary bacterial infection was unknown in this series and, with a few exceptions in which scattered colonies of coagulase-positive staphylococci were found, conjunctival cultures showed a consistently normal flora. No evidence of a leukocytic reaction to the disease was derived from a study of conjunctival scrapings.

Corneal sensitivity is reduced in most instances but in varying degrees and never completely as in herpes corneae. The disease is always bilateral, even in cases seen soon after onset. The symptoms, consisting of photophobia, burning and smarting, and blurring of vision, are usually mild except during exacerbations. Visual disturbance is seldom incapacitating, but during an exacerbation in one case in this series the vision was reduced from a normal of 20/20 to 20/100 in one eye and 20/70 in the other.

No special sex incidence was noted, 15 cases occurring in males and 11 in females, and there was no grouping with respect to age, the youngest patient being a boy of 8 years and the oldest a woman of 65 years.

Clinical Course.—In this series the clinical course has been protracted in every instance, the minimum time for healing being three years. It is noteworthy that none of the patients could give a clearcut history of the time of onset. In no instance was there a history of acute onset, and in no instance was the onset associated with any significant occupational or intercurrent disease. All cases were characterized by periodic subacute exacerbations, but there seemed to be no relation between these attacks and intercurrent disease of any kind. Nasal symptoms occurred in connection with some attacks but are believed to have been due to increased tear flow into the nose rather than to an associated rhinitis. In the 8 cases which were followed to healing, no residual signs of the keratitis, such as

---

Read before the Section on Ophthalmology at the Ninety Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950

From the Division of Ophthalmology and the Francis I. Proctor Foundation for Research in Ophthalmology of the University of California Medical School.

1 Fuchs, E: Keratitis punctata superficialis, Wien klin Wchnschr 2: 837 (Oct) 1889.

1. Braley, A E: Virus Diseases of the Cornea, M Rec & Ann 44: 102 (April) 1950

cicatrization or vascularization, were noted. In this respect the disease is believed to be strictly benign.

Treatment.—Superficial punctate keratitis appears to be totally resistant to treatment with the ordinary conjunctival antiseptics or with the sulfonamides used either topically or by mouth. The cases in this series were also resistant to penicillin, streptomycin, tyrothricin and aureomycin used topically. In my experience only two therapeutic measures have proved to be of any value. The first, used in four cases only, consisted in the removal of the entire corneal epithelium and the application of 3.5 per cent tincture of iodine solution to the denuded cornea. In two of the four cases healing occurred after this treatment. Application of iodine to the corneal opacities alone was ineffective. The second valuable therapeutic measure consisted in repeated smallpox vaccinations as advocated for the treatment of recurrent herpes simplex infections. In four of the nine cases with the condition treated in this way healing was complete. In the remaining 5 some degree of symptomatic relief was obtained, although the corneal disease continued to be active.

Etiological Basis.—Laboratory studies were made on 16 of the 26 patients in this series without conclusive results. In scrapings from three of the 16, scattered colonies of coagulase-positive Staphylococcus aureus were found. The bacterial flora was otherwise normal. In none of the 16 cases was a conjunctival eosinophilia or other evidence of conjunctival or corneal allergy demonstrable, and the patients reported no unusual allergic background. Conjunctival and corneal scrapings were used for rabbit cornea inoculations and in a few instances produced transient punctate corneal lesions resembling those of the human disease. In no instance, however, did chronic disease develop. Scrapings used for inoculations of mouse brain and the chorioallantois failed to produce any evidence of a virus; a few foci developed on the chorioallantois but were not transmissible in series These studies are being continued and will be the subject of a subsequent report. Braley[2] has recently reported success in isolating a virus from lesions in his cases and has produced in rabbits a chronic disease resembling the human disease. He has also reported the demonstration of neutralizing virus antibodies in serum from affected patients.

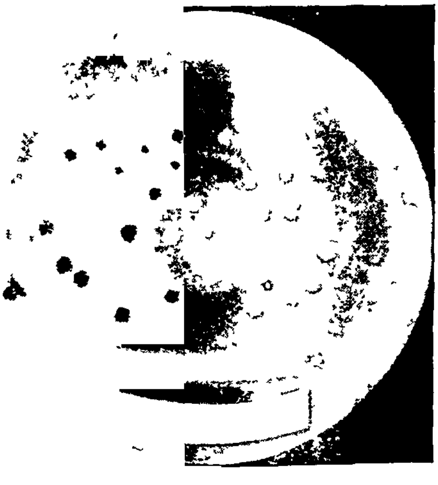


Fig 2—Large, round subepithelial opacities in a case of epidemic keratoconjunctivitis (low power magnification)

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of superficial punctate keratitis from other subepithelial and epithelial forms of superficial keratitis with punctate lesions involves the following considerations:

Subepithelial Forms.—Epidemic Keratoconjunctivitis: The classic example of a subepithelial keratitis is epidemic keratoconjunctivitis. Its diagnosis is based on the development of round subepithelial opacities (fig. 2) in seven to 10 days after onset of acute conjunctivitis. The opacities vary in size and, unlike the epithelial opacities of superficial punctate keratitis, are often grossly visible. They have a tendency to localize in the pupillary area. Epithelial changes also occur in this disease preceding the development of the subepithelial opacities, but they are microscopic in type and due primarily to epithelial edema. They have nothing in common with the larger epithelial opacities of superficial punctate keratitis. The clinical characteristics and course of epidemic keratoconjunctivitis, an acute self-limited disease of virus causation, have been adequately reported in the literature[3] and will not be redescribed here.

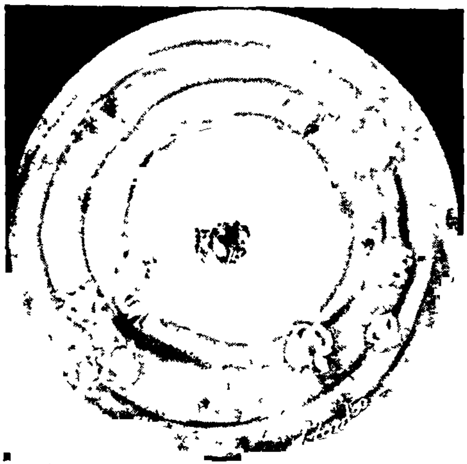


Fig 3—Subepithelial opacities in a case of herpes zoster keratitis

Nummular Keratitis: A second important type of subepithelial keratitis with punctate lesions is nummular keratitis; unlike epidemic keratoconjunctivitis, it has not been established as an etiological entity. Although the disease is apparently common on the European continent, it is seldom seen in the United States.[4] It is characterized by round, often grossly visible subepithelial opacities, similar to those of epidemic keratoconjunctivitis except for a tendency to ulcerate and form facets. Nummular keratitis is usually unilateral and exhibits neither the acute conjunctival inflammation nor the epidemic character of epidemic keratoconjunctivitis. Woods[5] has reported examples of it which were apparently due to brucellosis.

Other Diseases with Round Subepithelial Opacities: Round subepithelial opacities are seen with considerable

---

[3] Hogan, M J, and Crawford, J W: Epidemic Keratoconjunctivitis, Am J Ophth **25:** 1059 (Sept) 1942 Holmes, W J: Epidemic Infectious Conjunctivitis, Hawaii M. J **1:** 11 (Nov) 1941. Thygeson, P The Epidemiology of Epidemic Keratoconjunctivitis, Am J. Ophth **32:** 951 (July) 1949

[4] Howell, S C.: Keratitis Nummularis (Dimmer): A Report of 5 Cases, South M. J **42:** 94 (Feb) 1949

[5] Woods, A C: Nummular Keratitis and Ocular Brucellosis, Arch Ophth **35:** 490 (May) 1946

SUPERFICIAL PUNCTATE KERATITIS

PHILLIPS THYGESON, M.D.
San Jose, Calif.

The term superficial punctate keratitis was introduced by Fuchs[1] in 1889 to describe superficial keratitis secondary to acute conjunctivitis. This disease is now generally known under the more descriptive name of epidemic keratoconjunctivitis. Since Fuchs' original use of the term, superficial punctate keratitis has at no time been applied strictly to the disease entity he described in connection with it. It has tended rather to become a general morphological designation for any condition presenting multiple, small, discrete lesions of the cornea affecting the epithelial and immediately adjacent subepithelial tissues. This has resulted in an unfortunate confusion in the literature, since many clinical entities of known or unknown causation produce punctate epithelial lesions and a smaller but appreciable number produce punctate subepithelial lesions.

Of the many types of epithelial keratitis, however, one stands out as a distinct clinical entity, and it is proposed that the name superficial punctate keratitis be reserved for it alone. Although this entity has been known to occur in most parts of the world, no clearcut description of it appears in any of the current textbooks and references to it in the current literature, with the exception of one description in an article by Braley,[2] have failed to differentiate it sharply from other forms of nonspecific punctate epithelial or subepithelial keratitis.

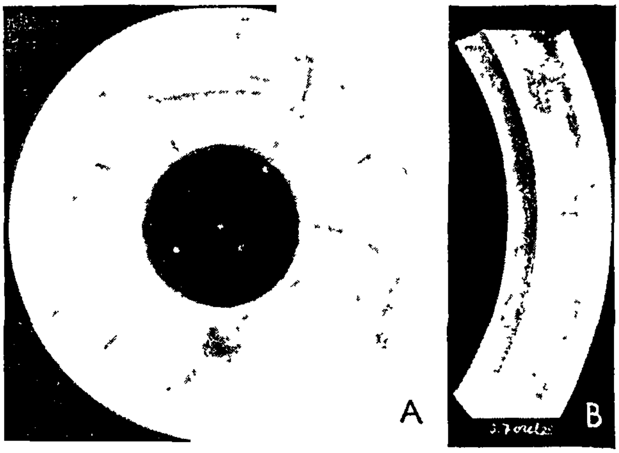


Fig. 1.—Appearance of corneal lesions in a case of superficial punctate keratitis of three years' duration. *A*, low power examination, slit lamp and corneal microscope; *B*, high power slit lamp and corneal microscope examination, showing granular nature of the opacity.

THE CLINICAL ENTITY

Since 1930 twenty-six typical examples of superficial punctate keratitis have been studied by me in the states of Iowa, New York, Florida and California. In general they have presented identical clinical characteristics and have run the same course, indicating the existence of a clinical entity which may be described as follows:

Clinical Picture.—The disease is essentially epithelial keratitis characterized by multiple, discrete, epithelial opacities (fig. 1 *A*). These lesions are relatively few in number, varying in this series of cases from three to as many as 20. They favor the pupillary area, although any part of the cornea may be involved. The individual opacities, while considerably larger than the punctate lesions of most other forms of epithelial keratitis, are still not grossly visible. The larger ones can be seen with the loupe, but use of the slit lamp is necessary for recognition of the smaller ones. Each opacity, when studied under the high power objective, can be seen to be made up of a conglomeration of smaller punctate opacities (fig. 1 *B*). The lesions stain variably with fluorescein or aqueous mercurochrome; the majority retain the stain, but some retain it either feebly or not at all. With the slit lamp the lesions are seen to be strictly epithelial and definitely nonulcerative in character, although partial desquamation of the epithelial layers may occur in the more deeply staining opacities. The essential lesion, however, is an intraepithelial opacity with little if any subepithelial edema and no subepithelial infiltration. The epithelium between the opacities appears to be normal except during severe exacerbations, when there may be a minimal amount of epithelial edema between close-lying foci. In most cases the opacities are evanescent, their location varying from week to week, but in some the pattern remains relatively fixed over a period of months.

The keratitis is the most important lesion of the disease, but it may be accompanied by a mild catarrhal conjunctivitis with predominant involvement of the bulbar conjunctiva but without papillary hypertrophy or exudate. The conjunctival hyperemia increases during the periodic exacerbations of the disease but is never pronounced. Secondary bacterial infection was unknown in this series and, with a few exceptions in which scattered colonies of coagulase-positive staphylococci were found, conjunctival cultures showed a consistently normal flora. No evidence of a leukocytic reaction to the disease was derived from a study of conjunctival scrapings.

Corneal sensitivity is reduced in most instances but in varying degrees and never completely as in herpes corneae. The disease is always bilateral, even in cases seen soon after onset. The symptoms, consisting of photophobia, burning and smarting, and blurring of vision, are usually mild except during exacerbations. Visual disturbance is seldom incapacitating, but during an exacerbation in one case in this series the vision was reduced from a normal of 20/20 to 20/100 in one eye and 20/70 in the other.

No special sex incidence was noted, 15 cases occurring in males and 11 in females, and there was no grouping with respect to age, the youngest patient being a boy of 8 years and the oldest a woman of 65 years.

Clinical Course.—In this series the clinical course has been protracted in every instance, the minimum time for healing being three years. It is noteworthy that none of the patients could give a clearcut history of the time of onset. In no instance was there a history of acute onset, and in no instance was the onset associated with any significant occupational or intercurrent disease. All cases were characterized by periodic subacute exacerbations, but there seemed to be no relation between these attacks and intercurrent disease of any kind. Nasal symptoms occurred in connection with some attacks but are believed to have been due to increased tear flow into the nose rather than to an associated rhinitis. In the 8 cases which were followed to healing, no residual signs of the keratitis, such as

---

Read before the Section on Ophthalmology at the Ninety Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

From the Division of Ophthalmology and the Francis I. Proctor Foundation for Research in Ophthalmology of the University of California Medical School.

1. Fuchs, E.: Keratitis punctata superficialis, Wien. klin. Wchnschr. 2: 837 (Oct.) 1889.

1. Braley, A. E.: Virus Diseases of the Cornea, M. Rec. & Ann. **44:** 102 (April) 1950.

cicatrization or vascularization, were noted. In this respect the disease is believed to be strictly benign.

Treatment.—Superficial punctate keratitis appears to be totally resistant to treatment with the ordinary conjunctival antiseptics or with the sulfonamides used either topically or by mouth. The cases in this series were also resistant to penicillin, streptomycin, tyrothricin and aureomycin used topically. In my experience only two therapeutic measures have proved to be of any value. The first, used in four cases only, consisted in the removal of the entire corneal epithelium and the application of 3.5 per cent tincture of iodine solution to the denuded cornea. In two of the four cases healing occurred after this treatment. Application of iodine to the corneal opacities alone was ineffective The second valuable therapeutic measure consisted in repeated smallpox vaccinations as advocated for the treatment of recurrent herpes simplex infections. In four of the nine cases with the condition treated in this way healing was complete. In the remaining 5 some degree of symptomatic relief was obtained, although the corneal disease continued to be active.

Etiological Basis.—Laboratory studies were made on 16 of the 26 patients in this series without conclusive results. In scrapings from three of the 16, scattered colonies of coagulase-positive Staphylococcus aureus were found. The bacterial flora was otherwise normal. In none of the 16 cases was a conjunctival eosinophilia or other evidence of conjunctival or corneal allergy demonstrable, and the patients reported no unusual allergic background. Conjunctival and corneal scrapings were used for rabbit cornea inoculations and in a few instances produced transient punctate corneal lesions resembling those of the human disease. In no instance, however, did chronic disease develop. Scrapings used for inoculations of mouse brain and the chorioallantois failed to produce any evidence of a virus; a few foci developed on the chorioallantois but were not transmissible in series. These studies are being continued and will be the subject of a subsequent report. Braley[2] has recently reported success in isolating a virus from lesions in his cases and has produced in rabbits a chronic disease resembling the human disease. He has also reported the demonstration of neutralizing virus antibodies in serum from affected patients.

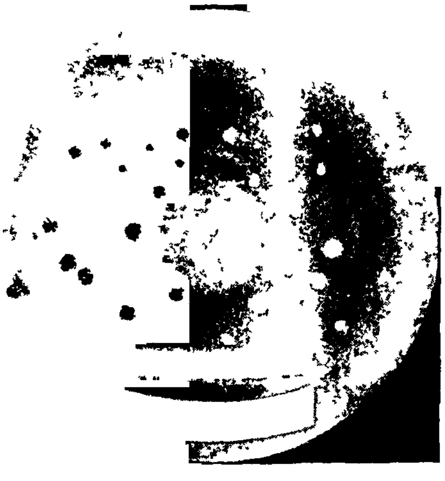


Fig 2—Large, round subepithelial opacities in a case of epidemic keratoconjunctivitis (low power magnification).

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of superficial punctate keratitis from other subepithelial and epithelial forms of superficial keratitis with punctate lesions involves the following considerations:

Subepithelial Forms.—Epidemic Keratoconjunctivitis: The classic example of a subepithelial keratitis is epidemic keratoconjunctivitis. Its diagnosis is based on the development of round subepithelial opacities (fig. 2) in seven to 10 days after onset of acute conjunctivitis. The opacities vary in size and, unlike the epithelial opacities of superficial punctate keratitis, are often grossly visible. They have a tendency to localize in the pupillary area. Epithelial changes also occur in this disease preceding the development of the subepithelial opacities, but they are microscopic in type and due primarily to epithelial edema. They have nothing in common with the larger epithelial opacities of superficial punctate keratitis. The clinical characteristics and course of epidemic keratoconjunctivitis, an acute self-limited disease of virus causation, have been adequately reported in the literature[3] and will not be redescribed here.

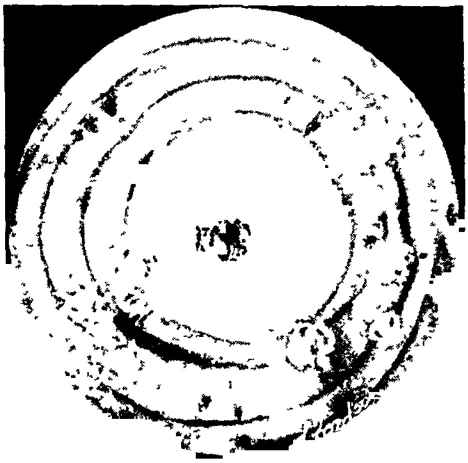


Fig. 3—Subepithelial opacities in a case of herpes zoster keratitis.

Nummular Keratitis: A second important type of subepithelial keratitis with punctate lesions is nummular keratitis; unlike epidemic keratoconjunctivitis, it has not been established as an etiological entity. Although the disease is apparently common on the European continent, it is seldom seen in the United States.[4] It is characterized by round, often grossly visible subepithelial opacities, similar to those of epidemic keratoconjunctivitis except for a tendency to ulcerate and form facets. Nummular keratitis is usually unilateral and exhibits neither the acute conjunctival inflammation nor the epidemic character of epidemic keratoconjunctivitis. Woods[5] has reported examples of it which were apparently due to brucellosis.

Other Diseases with Round Subepithelial Opacities: Round subepithelial opacities are seen with considerable frequency in the keratitis of herpes zoster ophthalmicus (fig. 3) and occasionally in phlyctenular keratitis.[6] With respect to these two diseases there is no problem in differential diagnosis because of the characteristic skin lesions of the former and the characteristic conjunctival lesions of the latter. To my knowledge there are no other forms of subepithelial keratitis which enter into the problem of differential diagnosis under discussion.

---

[3] Hogan, M J, and Crawford, J W: Epidemic Keratoconjunctivitis, Am J Ophth **25**: 1059 (Sept) 1942. Holmes, W. J: Epidemic Infectious Conjunctivitis, Hawaii M J. **1**: 11 (Nov.) 1941. Thygeson, P.: The Epidemiology of Epidemic Keratoconjunctivitis, Am. J Ophth **32**: 951 (July) 1949.

[4] Howell, S. C.: Keratitis Nummularis (Dimmer): A Report of 5 Cases, South. M. J **42**: 94 (Feb) 1949.

[5] Woods, A C: Nummular Keratitis and Ocular Brucellosis, Arch Ophth **35**: 490 (May) 1946

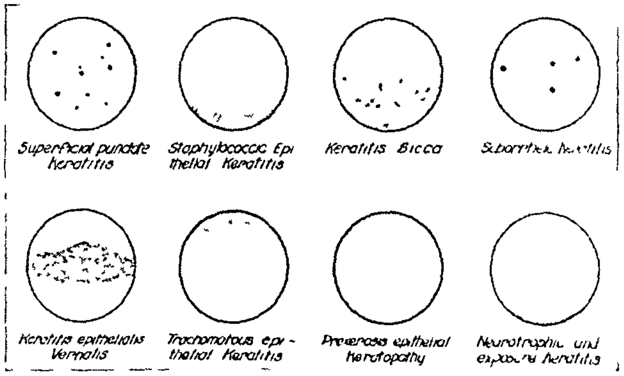

Superficial punctate keratitis
Staphylococcic Epithelial Keratitis
Keratitis Sicca
Seborrheic keratitis
Keratitis epithelialis Vernalis
Trachomatous epithelial Keratitis
Prexerosis epithelial keratopathy
Neurotrophic and exposure keratitis

Fig 4.—Distribution of lesions of various types of epithelial keratitis

Epithelial Forms.—It is only the epithelial forms of keratitis which present any difficulty in the differential diagnosis of superficial punctate keratitis. Epithelial changes, as seen with the slit lamp and corneal microscope in the various forms of epithelial keratitis other than superficial punctate keratitis, appear at first glance to be completely nonspecific in character. However, on closer observation morphological differences and differences in distribution can be discerned.

The commonest epithelial lesion is a microscopic pointlike opacity, stainable with fluorescein, which is probably a minute round epithelial erosion produced by epithelial cell desquamation. This desquamation appears to involve only the upper layers of the epithelium, as judged by its examination under high power magnification, and is the type seen so frequently in association with staphylococcic blepharoconjunctivitis. A second distinguishable lesion is similar to the first except that instead of being round it is irregular in shape, linear or comma shaped. This type of lesion is seen characteristically in keratitis sicca. A third morphological type is an intraepithelial opacity which may be punctate or amorphous and is frequently confluent. Fluorescein staining is irregular, some lesions not staining at all and others staining faintly. This is the type seen characteristically in the prexerosis of early vitamin A deficiency. Linear erosions suggest trauma, as from trichiasis. Widespread, diffuse, blotchy epithelial erosion is characteristic of exposure keratitis. Epithelial filaments are of course characteristic of filamentary keratitis which is usually but not always an advanced form of keratitis sicca. A combination of several different types of lesion may exist simultaneously in the same case. As seen in figure 4, the distribution of the lesions also has important differential significance.

In my experience 11 different types of epithelial keratitis have appeared to be differentiable from superficial punctate keratitis on clinical and etiological grounds, as follows:

1. Epithelial Keratitis Secondary to Staphylococcic Blepharoconjunctivitis: This is by far the most commonly encountered type and can usually be readily diagnosed clinically on the basis of the associated staphylococcic blepharoconjunctivitis. It appears typically as multiple, minute, fluorescein-staining points involving the lower third of the cornea (fig. 5 *A*). The staining points appear to be minute epithelial erosions and are only a fraction of the size of the lesions of superficial punctate keratitis. Although ordinarily rather evenly spaced, they occasionally group themselves in clusters which simulate the lesions of superficial punctate keratitis. This occurs only rarely, however, and has not complicated the problem of differential diagnosis since the microscopic epithelial erosions typical of staphylococcic keratitis are always also present.

2. Epithelial Keratitis Secondary to Pneumococcic and Koch-Weeks Conjunctivitis: The epithelial lesions which occur occasionally in pneumococcic and Koch-Weeks conjunctivitis sometimes simulate closely those occurring in superficial punctate keratitis but never have been a diagnostic problem. They have always been transient, disappearing with the healing of the primary conjunctivities.

3. Epithelial Keratitis Secondary to Seborrheic Blepharitis: This rather rare clinical entity has been seen only exceptionally in association with severe forms of seborrheic blepharitis[7] and may be an allergic manifestation of sensitivity to Pityrosporum ovale. The majority of cases of seborrheic blepharitis, when not complicated by secondary staphylococcic infection, have no associated keratitis. In my experience seborrheic keratitis has appeared as an epithelial keratitis involving the entire corneal surface (fig. 5 *B*). The changes have consisted in punctate and irregular blotchy fluorescein-staining erosions, usually severe enough noticeably to affect vision. They have cleared simultaneously with clearing of the blepharitis.

4. Epithelial Keratitis in Trachoma: Minute, punctate, fluorescein-staining epithelial erosions are a characteristic feature of trachoma (fig. 6). They are seen at the onset of the disease, simultaneously with the development of conjunctival lesions and before the development of pannus, and may be the last lesion

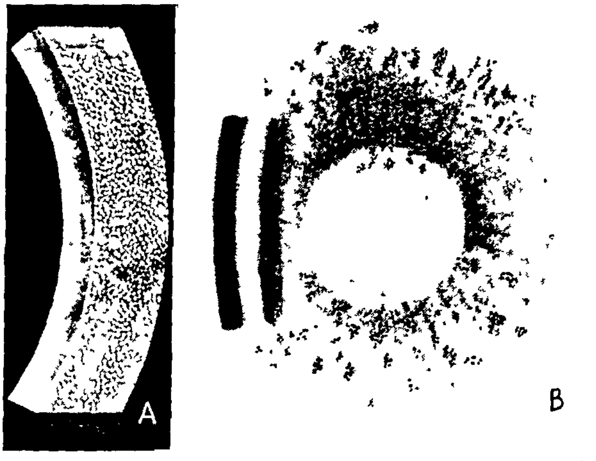


Fig 5.—*A*, punctate fluorescein staining epithelial keratitis secondary to staphylococcic blepharoconjunctivitis; *B*, epithelial keratitis in a severe case of seborrheic blepharitis of long duration

to disappear. Microscopic in type, they can be seen only with the slit lamp and corneal microscope. Their distribution may be considered characteristic in that the upper half of the cornea, particularly the upper limbus region, is usually predominantly involved.

---

[6] Fritz, M. H.; Thygeson, P., and Durham, D: Phlyctenular Keratitis in Alaska Natives, Am J. Ophth, to be published.

[7] Gots, J.; Thygeson, P., and Waisman, M: Observations on Pityrosporum Ovale in Seborrheic Blepharitis and Conjunctivitis, Am. J. Ophth. 30: 1485 (Dec.) 1947.

5. Epithelial Keratopathy in Keratoconjunctivitis Sicca: Mild forms of keratitis sicca are characterized by punctate, fluorescein-staining erosions of the corneal epithelium, similar in appearance and distribution to the forms seen in staphylococcic epithelial keratitis. When loss of tear function is severe, however, the epithelial changes become widespread, irregular and blotchy, and may be accompanied with filament formation (fig. 7).

6. Epithelial Changes in Neurotrophic and Exposure Keratitis: In mild cases the epithelial changes in neurotrophic and exposure keratitis are punctate in character, involve the lower third of the cornea predominantly and appear to be related most often to drying of the cornea due to exposure while sleeping. Severe cases show widespread, diffuse, blotchy staining. Closure of the eye effects disappearance of the lesions in mild cases and improvement in severe cases.

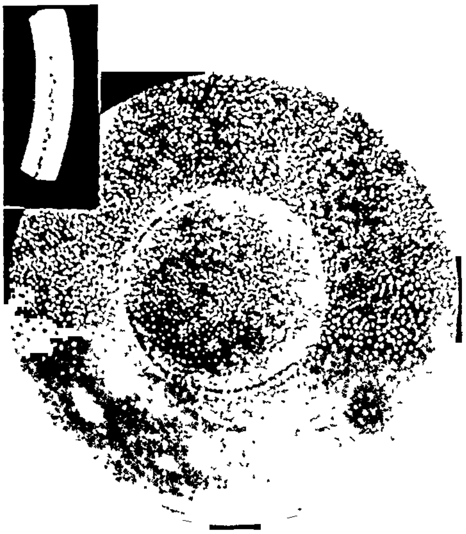


Fig. 6.—Microscopic, fluorescein staining epithelial keratitis in a case of acute trachoma at onset. Atypically, the pupillary area is predominantly involved.

7. Epithelial Keratitis in Vernal Catarrh: Mild forms of vernal catarrh ordinarily exhibit no corneal changes, but in severer cases, both palpebral and limbal, epithelial changes are common. They have been described by Tobgy,[8] under the name keratitis epithelialis vernalis, as appearing as though the cornea were dusted with flour. Tobgy noted edema of the epithelium and occasional vesicle formation, stating that the changes were most frequently to be seen in the upper half of the cornea and in the periphery of the cornea in the bulbar type of the disease but that occasionally the whole cornea was affected.

In my experience keratitis epithelialis vernalis (Tobgy) (fig. 8) has been found in almost every case of vernal catarrh, at least during exacerbations, although the involvement has in some instances been minimal. The epithelial changes are sufficiently characteristic to be almost pathognomonic of the disease. They consist of an intraepithelial opacification which, instead of being typically punctate in character, usually appears as a syncytium dotted with minute clear areas. In limbal cases the lesion appears principally in the area of the lid aperture, but in palpebral cases the upper half of the cornea is more often involved.

8. Epithelial Changes in Prexerosis: One of the earliest signs of prexerosis is a punctate opacification of the corneal epithelium believed to be due to beginning cornification of the epithelial cells as a result of vitamin A deficiency. In my experience it has appeared simultaneously with the development of Bitot spots at the temporal limbus and has been seen in children on deficient diets and in chronic alcoholic adults with polyvitamin deficiency. The epithelial changes resemble those of vernal catarrh except that the whole corneal surface is characteristically involved. Unlike other forms of epithelial keratitis, e. g., staphylococcic keratitis, epithelial desquamation does not seem to be a major feature and fluorescein-staining is minimal.

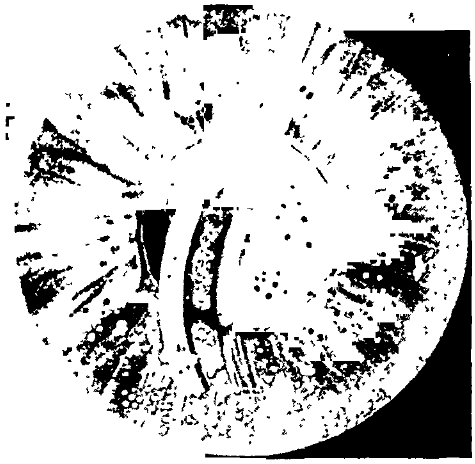


Fig. 7.—Epithelial changes in a severe case of keratitis sicca, showing filaments and punctate fluorescein-staining epithelial erosions.

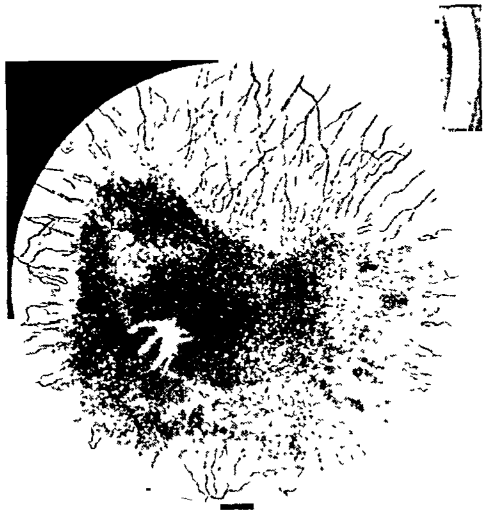


Fig. 8.—Keratitis epithelialis vernalis (Tobgy) in a severe case of palpebral vernal catarrh.

9. Epithelial Keratitis in Ultraviolet and Roentgen Ray Burns: Punctate epithelial keratitis[9] is a feature of radiation burns, e. g., the keratitis of flash burns which produces photophobia and blepharospasm. This

---

[8] Tobgy, A. F.: Eighth Annual Report of Giza Memorial Ophthalmic Laboratory, Cairo, Egypt, Schindler's Press, 1933, p. 103.

[9] Scobee, R. G., and Griffey, E. W.: Actinic Keratoconjunctivitis, Am. J. Ophth. 27: 632 (June) 1944.

keratitis involves the central area of the cornea not protected by the lids and appears as a punctate, fluorescein-staining keratitis with edema and spotty desquamation of the epithelial cells. The epithelial changes seen in connection with a few roentgen ray and radiation burns of the cornea have been identical.

10. Epithelial Keratitis in Molluscum Contagiosum and Verruca Keratitis: A pu[illegible] epithelial keratitis, identical [illegible] epithelial keratitis seen in trachoma, was a constant feature of 8 cases of molluscum keratoconjunctivitis that I observed. As in trachoma, the keratitis favored the upper half of the cornea, even when the molluscum nodule was on the lower lid. Removal of the nodule resulted in rapid cure of the keratitis.

The epithelial keratitis associated with the common wart has been entirely different. In cases observed by me it has been localized to one or more small areas and the changes have been not punctate but blotchy and irregular, resembling recurrent erosion of the cornea. Cure of the keratitis has always followed removal or destruction of the lid margin tumor.

11. Occupational and Traumatic Epithelial Keratitis: As pointed out by Davidson,[10] the lesion resulting from injury with multiple minute foreign bodies, such as may be sustained by stone masons, grinders and other occupational specialists, may suggest superficial punctate keratitis, but careful slit lamp observation quickly reveals the true nature of the opacities. Workers in the artificial silk industry, and in other industries in which exposure to irritating chemical vapors occurs, have been known to manifest punctate epithelial changes.[11] In the few industrial cases of this nature that I have seen, the epithelial lesions stained readily with fluorescein and appeared to be desquamative in character. Their distribution conformed to the area of the lid aperture. Traumatic epithelial keratitis due to trichiasis can usually be recognized readily by the linear character of the fluorescein-staining streaks.

COMMENT

The present confusion with respect to the terminology of punctate lesions of the corneal epithelium and immediately subjacent tissues is unfortunate for several reasons. It has reduced the value of published reports on superficial keratitis, especially in the foreign literature, and in this country has made the teaching of the various forms of superficial corneal disease unnecessarily difficult. Finally, the lack of a clearcut differentiation of one form of superficial keratitis from another has interfered with the administration of appropriate treatment on many occasions because of confusion as to etiological basis and clinical course. The classification of punctate forms of superficial keratitis suggested in this report is an attempt to bring a degree of order to present knowledge of this group of clinical and etiological entities.

As designated in this report, superficial punctate keratitis itself is a readily definable entity whose name aptly describes it. As a matter of fact, there are few corneal diseases whose morphological and clinical characteristics can be as well defined and in which differential diagnosis offers so little difficulty. It is only unfortunate that the name was originally introduced for an entirely different disease, which is now much better described by its currently accepted name, epidemic keratoconjunctivitis.

Of the two principal subepithelial forms of keratitis with punctate lesions, only nummular keratitis remains a diagnostic problem. It has not yet been established as an etiological entity, and its characteristics are ill defined. The epithelial forms of punctate keratitis, on the other hand, are all susceptible to definition and many are secondary to well defined diseases of the conjunctiva and lid margins. The therapeutic value of identifying precisely all cases of epithelial keratitis would seem to be obvious; the treatment of staphylococcic epithelial keratitis, for example, has nothing in common with the treatment of keratitis sicca.

SUMMARY AND CONCLUSIONS

1. The term superficial punctate keratitis, introduced by Fuchs in 1889 to describe the disease now known as epidemic keratoconjunctivitis, has been applied indiscriminately in the literature to any epithelial or subepithelial form of keratitis with multiple, small, discrete lesions, without regard to etiological basis or clinical definition.

2. Among the many types of epithelial and subepithelial keratitis of varied causation, there is one distinct clinical entity for which the name superficial punctate keratitis seems ideally suited. It is an epithelial keratitis of long duration which is always bilateral, is associated with minimal conjunctival symptoms, runs a benign course and is probably caused by a virus.

3. Other forms of superficial keratitis can be classified according to etiological factors or clinical characteristics. Epidemic keratoconjunctivitis and nummular keratitis are the principal examples of subepithelial keratitis; examples of epithelial keratitis include the types secondary to staphylococcic blepharitis, seborrheic blepharitis, trachoma, molluscum contagiosum conjunctivitis, vernal catarrh, prexerosis, keratoconjunctivitis sicca, lagophthalmos, loss of corneal sensation and occupational traumatisms.

ABSTRACT OF DISCUSSION

Dr. James H. Allen, New Orleans: Dr. Thygeson has again clarified a situation which is extremely confusing in the literature. He has emphasized the diagnostic features of superficial punctate keratitis, but probably this paper is more important because it calls attention to the etiological factors of epithelial keratitis. It has been my impression for a number of years that ophthalmologists have overlooked the extraocular or extracorneal factors of epithelial keratitis, since many corneal lesions have been treated locally for a prolonged period without benefit, and when finally attention has been paid to the extracorneal factors the lesion has healed. Some years ago associates and I were privileged to repeat and elaborate the experiments made by Morax and Elmassian in 1898. They instilled crude bacterial filtrates onto eyes and produced conjunctivitis and epithelial keratitis. We were able to prove that the lesion was due to toxin in the case of staphylococcic filtrates. Similar lesions occurred with filtrates from nontoxigenic organisms such as the Pneumococcus and were due to proteolytic enzymes produced by those organisms. Therefore we must consider the possibility of keratitis being produced by infection of the conjunctiva, lid margin and even the adjacent skin. In these instances, treatment of the corneal lesion is of no benefit but elimination of the adjacent infection will result in rapid healing. Dr. Thygeson referred to the keratitis produced by tumors, warts and molluscum of the lid margin. These may be mechanical or infectious, but excision of the tumor results in improvement of the corneal lesion. Many of these have been overlooked and the corneal lesion treated without benefit until the tumor has been removed. An exposure type of keratitis occurs in vernal conjunctivitis. The condition Dr. Thygeson described occurs most commonly with large papillomatous lesions of the lid, whereas in the limbic type of vernal conjunctivitis the lesion has been around the margin of the cornea rather than in the central band. Therefore I have thought of two varieties of epithelial keratitis in association with vernal conjunctivitis. I should like to emphasize the importance of study of the precorneal film in the recognition of causes of epithelial lesions of the cornea; by close examination of the precorneal film one can make a diagnosis of keratitis sicca before especially pronounced changes have occurred in the corneal epithelium. Another punctate epithelial lesion is that produced by anesthetics and detergents. Several years ago Dr. Swan warned of the danger of the prolonged use of detergents on the conjunctiva. The detergent probably destroys the protective precorneal film, thus permitting drying of the epithelium in addition to causing direct damage to the cells. Dr. Thygeson has rendered a service in clarifying the differential diagnosis of these lesions.

---

[10] Davidson, M.: Occupational Keratitides and Corneal Dystrophies, Arch. Ophth. **21**: 673 (April) 1939.

[11] Rankine, D.: Artificial Silk Keratitis, Brit. M. J. **2**: 6 (July 4) 1936.

Dr. A. E. Maumenee, San Francisco: I would like to congratulate Dr. Thygeson on the clearcut definition of the disease he has called superficial punctate keratitis. There has been considerable confusion in the literature about this disease because of the multitude of names which have been given it, e. g., superficial punctate keratitis, keratitis epitheliolysis and recurrent punctate erosion of the corneal epithelia. This type of confusion not infrequently occurs when a descriptive and not an etiological name is given to a condition. I would like to ask Dr. Thygeson whether punctate epithelial keratitis or punctate epithelial erosion keratitis would not be a more descriptive name of the condition he has just described than the term superficial punctate keratitis. It is always difficult to give a complete list of differential diagnoses. I would like to add a few more conditions to those that Drs. Thygeson and Allen have mentioned. Allergic reactions to atropine and other drugs can cause a superficial punctate erosion of the corneal epithelium. A similar reaction also occurs occasionally in the early stages of herpes simplex. Pure neuroparalytic keratitis without chronic exposure of the globe may produce epithelial erosion. In some cases recurrent erosion of the corneal epithelium following a fingernail scratch or like injury may cause punctate epithelial lesions. Lagophthalmos which occurs during sleep in some patients may produce a similar lesion in the lower part of the cornea. I agree that some of the chronic, persistently incapacitating lesions should be treated by removing the corneal epithelium after the application of iodine. I have had good results with this method of therapy in two patients. The immunobiologic basis of repeated vaccine therapy has always been puzzling to me. I wonder whether Dr. Thygeson has any suggestions on why repeated vaccination, even though there is a negative skin reaction, should be of value when there has been previous immunization. Also, does Dr. Thygeson have any comments on histamine desensitization as described by Horton and Walsh for these cases?

Dr. Phillips Thygeson, San Jose, Calif.: I am glad to learn of the additional types of epithelial keratitis suggested by Drs. Allen and Maumenee. With regard to terminology, the disease discussed in this paper has been known as superficial punctate keratitis, at least in the United States for many years, and I was under the impression that it was the same disease as that described by Fuchs until the first occurrence in this country in 1941 of epidemic keratoconjunctivitis. A review of the literature then showed that Fuchs's description applied to this disease rather than to any form of epithelial keratitis. Since the clinical entity under consideration in this paper has been known as superficial punctate keratitis I think it would be wise to maintain that name, which describes it well, and in addition to restrict use of that name to this entity instead of using it also to refer to other types of epithelial keratitis. With regard to vaccine therapy, the dermatologists introduced repeated vaccinia virus vaccinations for the treatment of recurrent herpes simplex infection. There is some immunologic basis for such treatment in the interference phenomenon, in which a pantropic virus is able to crowd out other less active viruses. In any event, I am convinced that vaccine therapy has been of some value in superficial punctate keratitis, but I do not know whether the effect was due to the interference phenomenon or to a foreign portein reaction. Foreign protein given in the form of typhoid vaccine, however, did not help my patients. I have been interested in the use of histamine desensitization in corneal disease but have had too little experience with this treatment to discuss it. I think it should receive further investigation.

ALUMINUM GELS IN THE MANAGEMENT OF RENAL PHOSPHATIC CALCULI

EPHRAIM SHORR, M.D.
and
ANNE C. CARTER, M.D.
With the Technical Assistance of Vincent Toscani, Viola Davis and Estelle Stevens
New York

Of the commoner types of renal calculi, the phosphatic variety remains one of the most difficult to manage, as regards both the prevention of recurrences after operative removal and the inhibition of the further growth of stones in situ. Although the reported incidence of recurrence varies widely, it can be fairly estimated to be approximately 40 per cent, on the basis of several of the more recent compilations.[1]

A number of factors apparently contribute to this high recurrence rate, quite apart from the difficulty in completely removing the entire mass of calculi at operation. Of major importance is the coexistence of urinary tract infection with organisms which are difficult to eliminate permanently even with modern chemotherapy.[2] In addition to the pathological effects of bacterial infection on the renal pelvis, the urea-splitting properties possessed by the most frequent bacterial offenders result in a highly ammoniacal urine favorable to the precipitation of calcium and phosphate ions. Anatomic or pathological obstructions to urine flow are also frequently associated with phosphatic stones and predispose to their reformation by stasis. In a small number of patients phosphatic calculi arise from systemic metabolic disturbances which may escape ready diagnosis or may resist correction or arise from inadvertent complications of treatment for other conditions. The former include hyperparathyroidism and enforced immobilization, such as that after spinal injury. The commonest examples of treatment regimens causing inadvertent complications are certain types of alkalinizing therapy for peptic ulcer or for the prevention of renal stones of the uric acid or cystine type.

The treatment usually employed in the management of phosphatic calculi is the acidification of the urine by means of acid-ash diets or acidifying agents in order to take advantage of the greater solubility of calcium and phosphate ions in the acid range.[3] Unfortunately this therapeutic approach is distinctly limited in effectiveness in many cases and particularly in those of

---

This study was aided by a grant from Wyeth, Inc., Philadelphia.

From the Department of Medicine, Cornell University Medical College, the Russell Sage Institute of Pathology and the New York Hospital.

[1] Twinem, F. P.: A Study of Recurrence Following Operation for Nephrolithiasis, J. Urol. **37:** 259-267 (Feb.) 193[illegible] [illegible] Nephrectomy Versus Conservative Operation in [illegible] ease of the Upper Urinary Tract, Surg., Gyne[illegible] (Dec.) 1937.

[2] Keyser, L. D.: Urinary Lithiasis: A Review of a Quarter Century of Research, J. Urol. **50:** 169-190 (Aug.) 1943.

[3] Higgins, C. C.: The Medical Management of Urinary Lithiasis, Cleveland Clin. Quart. **2:** 44-50 (April) 1935; Experimental and Clinical Observations on Urinary Calculi, New England J. Med. **213:** 1007-1012 (Nov. 21) 1935; Renal Lithiasis, Springfield, Ill., Charles C Thomas, Publisher, 1943.

the more malignant type.[4] The chief limiting factors are (*a*) the presence of bacterial infection with ammonia-forming organisms, which renders useless any acidifying regimen, and (*b*) the frequent coincidence of impaired renal function, which makes such a regimen hazardous by exposing the patient to the dangers of acidosis and further renal functional impairment.

In a previous report from this laboratory attention was called to the possible usefulness of a new therapeutic regimen whose effectiveness was not similarly limited.[5] This consisted in the use of aluminum hydroxide gels to bring about appropriate alterations in the chemical composition of the urine so that it would be unfavorable for the precipitation of phosphate ions. The rationale for this regimen resides in the formation of insoluble aluminum phosphate salts in the intestinal tract and the corresponding reduction in the amount of phosphorus available for absorption. This diversion of phosphate excretion via the intestinal route results in a proportional diminution in the amount excreted in the urine. With appropriate reduction in the concentration of phosphate ions, a point should be reached at which precipitation of this ion, along with calcium, ammonia or magnesium, could take place with difficulty or not at all, regardless of the urinary p_H. In the presence of impaired renal function, hyperphosphatemia and hypocalcemia, this regimen has been shown to have the additional advantage of correcting these electrolyte aberrations, often with improvement in the renal function.[6] Furthermore, its continued use is unassociated with any decrease in alkali reserve.

The limited therapeutic experience which was available at the time of the original report has now been amplified, with respect to both the number of patients under study and the duration of therapy. It is the purpose of the present report to summarize and evaluate this experience. Although the number of patients under study is still too small to permit definitive conclusions, the results to date with this regimen have been sufficiently impressive to warrant its recommendation. It is hoped that these observations will stimulate the more extensive use of this therapeutic procedure and thereby facilitate the conclusive evaluation of its merits.

MATERIALS AND METHODS

The group under study comprised 22 patients, 16 men and 6 women, whose phosphatic stone histories are given in detail below. They have been under observation and treatment in the Endocrine Clinic of the New York Hospital for two to seven years; 15 of them have also been studied on the Metabolism Ward of the Russell Sage Institute of Pathology. Included in this series is one hyperparathyroid patient with bilateral renal stones.

The patients studied on the Metabolism Ward were placed on constant diets, as indicated in each experiment. Calculated values for the various foods were obtained largely from the sixth edition of Sherman.[7] Twenty-four-hour urine samples were collected with toluene or thymol as preservative, and creatinine determinations by the method of Folin were made on all specimens to establish the completeness of the urine collections.

The urinary phosphorus was determined by the method of Fiske and SubbaRow, calcium by the method of Shohl and Pedley and the p_H with a hydrogen ion meter. All blood serum specimens were obtained while the patient was in the fasting state, except as otherwise noted, and analyzed for calcium by the method of Clark and Collip, for phosphorus by the method of Fiske and SubbaRow, for proteins by the Kjeldahl method and for alkaline phosphatase by the method of Gutman (personal communication).

The patients were followed in the Endocrine Clinic with monthly or bimonthly urinary phosphorus, calcium and creatinine determinations; roentgenograms of the kidneys, urine analyses and cultures, and estimations of fasting serum calcium, phosphorus, protein and alkaline phosphatase were performed at frequent intervals. To avoid the variations in aluminum gels resulting from different manufacturing processes, the following preparations from one source were utilized throughout: amphojel,® amphojel® tablets, amphojel® with magnesium trisilicate (contains 12 per cent magnesium trisilicate) and basaljel® (basic aluminum carbonate gel). All were administered in equally divided doses one hour after meals and at bedtime.

The range of daily dosage for each aluminum gel preparation was as follows: amphojel® and amphojel® with magnesium trisilicate, 90 to 200 cc., amphojel® tablets, 40, and basaljel,® 80 to 180 cc. The constipating effects of the different aluminum gel preparations varied from patient to patient and from time to time in the same patient. Constipation, when present, was controlled by cathartics of the patient's choice, such as mineral oil (liquid petrolatum), cascara or milk of magnesia (magnesia magma) in amounts sufficient to insure a daily bowel movement; as a result, no instance of fecal impaction was encountered in the patients taking these large amounts of aluminum gels.

To assist the ambulatory patient in the selection of an appropriate diet, a sample menu was constructed. This provided between 1,200 and 1,300 mg. of phosphorus a day and approximately 700 mg. of calcium; it was adequate with respect to other nutritional and vitamin requirements. The patients were instructed in its use by a staff dietitian. In addition, the patients were given a diet sheet detailing foods that were permissible and those which should be excluded because of an excessive phosphorus content.

RESULTS

1. *Comparison of Effectiveness of Various Aluminum Gel Preparations in Reducing Urinary Phosphorus.*—The reduction in urinary phosphorus excretion by the administration of aluminum gels is dependent on three factors: the phosphorus intake, the type of aluminum gel and the amount administered. The influence of each of these factors was studied with patients maintained under controlled conditions in the Metabolism Ward. The dietary phosphorus intake of each patient was constant throughout, the absolute amounts being varied for different patients. Dosage and type of aluminum gel preparations were also varied in order to provide data on their relative effectiveness in reducing urinary phosphorus.

Attention was centered on the effectiveness of two aluminum gels, amphojel® and basaljel®, prepared by different procedures.[8] The latter preparation, which had an aluminum content of 2.65 Gm. per 100 cc. as compared with 2.12 Gm. in the standard amphojel,® was developed with the cooperation of the staff members of Wyeth, Inc. In addition to its somewhat higher aluminum content, basaljel® seemed to offer a theoretical advantage over the aluminum hydroxide gels for the purpose of this study; the aluminum carbonate type of gel is more likely, during its contact with the hydrochloric acid of the gastric juice, to have its aluminum made more completely available for phosphate precipitation in the intestinal tract. This potential superiority was borne out by the metabolic studies.

---

[4] Oppenheimer, G. D., and Pollack, H.: Attempted Solution of Renal Calculi by Dietetic Measures, J. A. M. A. **108**: 349-352 (Jan. 30) 1937.

[5] Shorr, E.: The Possible Usefulness of Estrogens and Aluminum Hydroxide Gels in the Management of Renal Stone, J. Urol. **53**: 507-520 (April) 1945.

[6] Freeman, S., and Freeman, W. M. C.: Phosphorus Retention in Children with Chronic Renal Insufficiency: Effect of Diet and of the Ingestion of Aluminum Hydroxide, Am. J. Dis. Child. **61**: 981-1002 (May) 1941.

[7] Sherman, H. C.: Chemistry of Food and Nutrition, ed. 6, New York, the Macmillan Company, 1941.

[8] These aluminum gel preparations were supplied by Wyeth, Inc. Mr. Alfred Barol and Dr. David Ashkenaz of Wyeth, Inc., assisted in these studies in many ways.

Figure 1 illustrates four such comparative studies; each patient received a constant diet. In those with normal renal function (R. C., H. R. and E. L.), the aluminum carbonate gel was approximately one third more effective by volume than the aluminum hydroxide gel in reducing the urinary phophorus. Patient F. M. had appreciable impairment of renal function (blood urea nitrogen 30 mg. per 100 cc.; maximal urea clearance 43.7 per cent; phenolsulfonphthalein clearance 34 per cent in two hours, and maximal concentration 1.010); in this patient basaljel[5] proved to be 50 per cent more efficient than amphojel.[6] It was possible to reduce profoundly the urinary phosphorus excretion in patient E. L., who had hyperparathyroidism with renal calculi. However, the response is not as uniform in patients with this disease as in the normal subject, and the lowering of the urinary phosphorus with a given dosage of aluminum gel is likely to be less pronounced. Thus, in one subject with hyperparathyroidism associated with bone lesions but without renal calculi and with an initial low serum inorganic phosphorus value of 1.9 mg. per 100 cc., the urinary phosphorus output was reduced to 300 mg. per 24 hours while the subject was receiving 200 cc. of amphojel® a day, an amount that would virtually abolish urinary phosphorus excretion in the normal person on the same phosphorus intake.

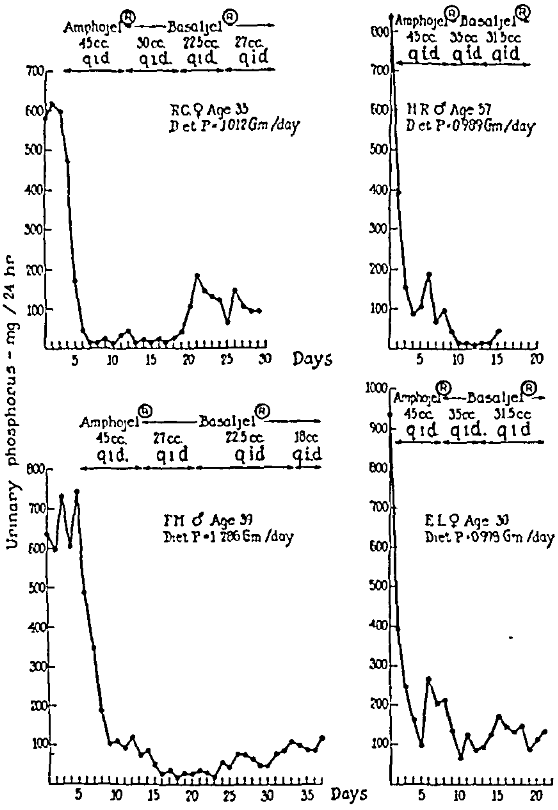


Fig 1.—Relative effectiveness of amphojel[8] and basaljel[5] in various doses given four times a day in reducing urinary phosphorus excretion in patients with renal calculi. Patient F. M. had renal insufficiency and E. L., hyperparathyroidism

The convenience of aluminum hydrate tablets for the ambulatory patient prompted a comparison of this type of preparation with the liquid form (see fig. 2). This revealed a discrepancy between the acid-buffering properties of this preparation and the capacity to reduce urinary phosphorus excretion. On the basis of the antacid action, 25 cc. of amphojel[8] is equivalent to three tablets of the drug (0.6 Gm. tablets, each containing 0.2 Gm. of aluminum), whereas approximately one and one-half times the calculated number of tablets were found to be required to achieve results equivalent to those with the aqueous suspension with respect to urinary phosphorus excretion.

With the reduction of urinary phosphorus brought about by the administration of the aluminum gels, there may be a slight and generally transient increase in the urinary calcium, as illustrated in figure 3. The rise in urinary calcium rarely exceeds 100 mg. per 24 hours and is small in comparison with the concurrent fall in urinary phosphorus. An example is given below in the case report of patient J. C. of the effects of prolonged aluminum gel administration on the urinary calcium; no appreciable rise has occurred after as long as five years of this therapy.

No changes of consequence were observed in the urinary p_H, the fasting serum calcium, protein or alkaline phosphatase levels during aluminum gel therapy, nor did amphojel® with magnesium trisilicate, in doses of 90 to 200 cc. per day for a period of six months, produce any significant change in the carbon dioxide content of the serum in the 13 subjects studied.

The effect of the level of phosphorus in the diet on urinary phosphorus output during aluminum gel therapy is readily demonstrable and can be shown to constitute a major factor in the irregular excretion of urinary phosphorus during aluminum gel therapy in the ambulatory patient. The stoechiometric relation between phosphorus intake and aluminum gel dosage with respect to aluminum phosphate precipitation in the intestinal tract emphasizes the necessity for the standardization of each factor in the individual patient and for the detection of any deviations from the prescribed regimen by frequent 24-hour urinary analyses for phosphorus.

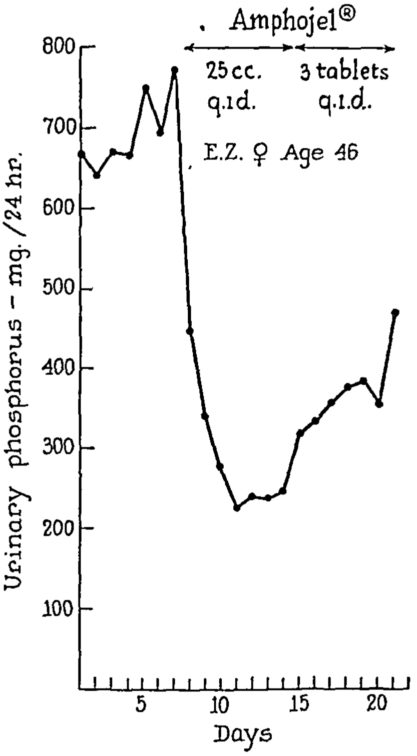


Fig. 2.—Relative effectiveness of amphojel[8] given four times a day as *aqueous suspension and as tablets in reducing* urinary phosphorus excretion (phosphorus intake constant at 1.237 Gm.).

2. *Mechanisms Involved in the Reduction of Urinary Phosphorus by Aluminum Gels.*—The mechanism by which the low urinary phosphorus excretion is brought about during aluminum gel therapy is a matter of interest. The studies of Freeman and Freeman[6] on children with renal insufficiency showed this agent to cause a striking reduction in serum inorganic phosphorus concurrent with the reduction of the urinary inorganic phosphorus excretion. In their series one child who had osteopetrosis but good renal function also showed a pronounced fall in fasting inorganic phosphorus with aluminum hydroxide therapy while on a low phosphorus diet.

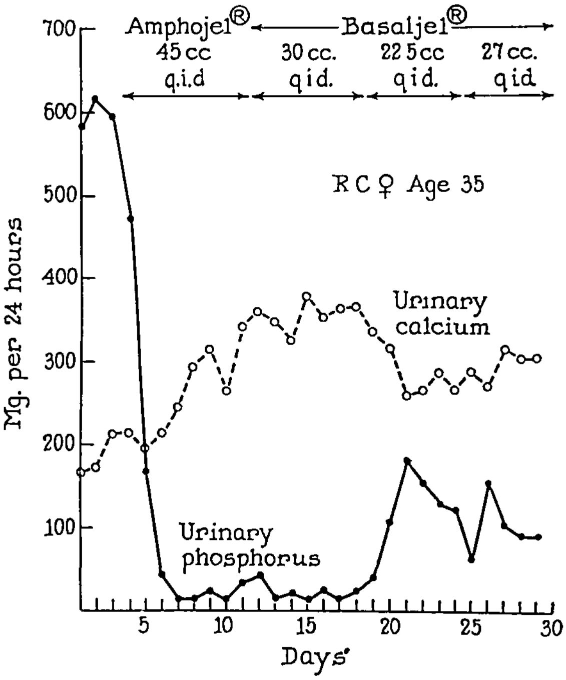


Fig 3.—Effects of amphojel® and basaljel® in various doses given four times a day on urinary phosphorus and calcium excretion on a constant diet. The diet contained: phosphorus, 1.012 Gm.; calcium, 0.489 Gm., and nitrogen, 10.48 Gm., per day.

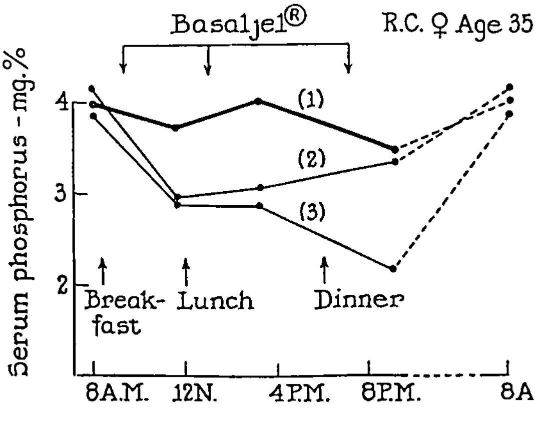


Fig. 4.—Alterations in serum inorganic phosphorus during basaljel® therapy in a patient on a constant phosphorus intake of 1.012 Gm. per day: curve 1, control, curve 2, basaljel® 27 cc. four times a day, and curve 3, basaljel® 30 cc. four times a day. The 24 hour urinary phosphorus during experiment 1 was 0.597 Gm.; during experiment 2 it was 0.092 Gm., and during experiment 3 it was 0.015 Gm. (From an unpublished study with Drs. Richmond W. Smith Jr. and William C. Thomas Jr.)

In the group of adults included in the present study a slight but irregular reduction in the average values for serum inorganic phosphorus did occur during aluminum gel therapy, but in most instances the fasting values were not significantly altered despite the continued low urinary phosphorus output (table 1). The possibility was explored that a greater reduction in the serum inorganic phosphorus values than was observed in the fasting state might prevail during the period of the day over which the aluminum gel was being taken. This proved to be the case. Figure 4 shows the results of one such study in a patient maintained on a constant dietary intake before and during aluminum gel therapy. The observations in this case are representative of four others studied; they serve to show that the serum inorganic phosphorus values are significantly lowered during the greater portion of the 24 hours over which an aluminum gel preparation is taken. The fasting values are therefore not a reliable indication of the prevailing serum inorganic phosphorus levels. The differences between the serum inorganic phosphorus curves during the control and aluminum gel periods could not be attributed to changes in blood sugar values, which were of the same order during each test. These lowered serum inorganic phosphorus values assuming that the patient had an unaltered glomerular filtration rate, would provide a smaller load of inorganic phosphate to the renal tubules and allow for its correspondingly more complete tubular resorption. Hence, the same mechanism would appear to operate in subjects with normal renal function as was shown to be involved by Freeman and Freeman in children with the hyperphosphatemia of renal disease. In one patient of this series, with renal insufficiency, there was a prompt fall in fasting serum inorganic phosphorus of 0.9 mg. per 100 cc. on which was superimposed a further reduction during the portion of the day over which he received aluminum gel.

Table 1.—*Effects of Aluminum Gel Therapy on Fasting Serum Inorganic Phosphorus Values*

Patient	Duration of Therapy in Years	Prior to Therapy: Average Serum P, Mg./100 Cc.	Prior to Therapy: No. of Determinations	With Aluminum Gel Therapy: Average Serum P, Mg./100 Cc.	With Aluminum Gel Therapy: No. of Determinations	Average Change in Serum P with Therapy, Mg./100 Cc.
H. F.	3	3.97 (3.45 to 4.34)	4	3.29 (2.72 to 3.98)	4	−0.68
F. M.	2	2.81 (2.78 to 2.84)	2	2.24 (1.61 to 3.00)	9	−0.57
J. M.	3	4.22 (3.60 to 5.0)	8	4.55 (3.76 to 5.97)	6	+0.33
J. M.	7	4.18 (3.89 to 4.38)	12	3.67 (3.07 to 4.32)	16	−0.51
D. R.	3	3.90 (3.62 to 4.40)	7	3.66 (3.32 to 4.28)	3	−0.24
I. S.	6	3.32 (3.32)	2	3.05 (2.62 to 3.44)	8	−0.27
L. T.	7	4.01 (3.55 to 4.65)	7	3.63 (2.72 to 4.48)	14	−0.41
M. T.*	6	3.43 (3.21 to 3.78)	3	3.41 (2.53 to 4.76)	9	−0.02

* Case 1 in this article

Another possible mechanism by which the aluminum gels might reduce the urinary inorganic phosphorus is suggested by the current concepts that the parathyroid hormone influences urinary phosphorus excretion by reducing the renal tubular resorption of phosphate and that the extent of parathyroid hormone secretion is regulated by the level of serum inorganic phosphorus.[9] From these concepts it would follow that the lowered serum phosphorus level resulting from aluminum gel therapy would depress parathyroid hormone secretion and thereby enhance the renal resorption of phosphate.

---

[9] Harrison, H. E., and Harrison, H. C.: The Renal Excretion of Inorganic Phosphate in Relation to the Action of Vitamin D and Parathyroid Hormone, J. Clin. Investigation **20:** 47-55 (Jan.) 1941. Albright, F.; Bauer, W.; Cockrill, J. R., and Ellsworth, R.: Studies on the Physiology of the Parathyroid Glands: II. The Relation of the Serum Calcium to the Serum Phosphorus at Different Levels of Parathyroid Activity, ibid. **9:** 659-677 (Feb.) 1931.

However, if any such depression of parathyroid function does occur from chronic use of aluminum hydroxide gels, it is readily reversible, since there is a prompt restoration of the control serum and urinary inorganic phosphorus levels on cessation of therapy.

3. *Evaluation of Clinical Results of Aluminum Gel Therapy.*—Twenty-two patients have been followed at frequent intervals for two to seven years while they were on a moderately low phosphorus intake and receiving aluminum gels in amounts adequate to maintain the 24-hour urinary phosphorus excretion at low levels.[10] The periods over which this therapeutic regimen has been employed are given in table 2. Table 3 details the number of operations for removal of renal calculi in the group under study, prior to the institution of therapy. All the patients had had some type of phosphatic stone. Four had pure calcium phosphate calculi; the remainder had mixtures of calcium, ammonium or magnesium phosphatic stones. In several there were also admixtures of calcium carbonate and calcium oxalate. The four patients without previous operation had passed phosphatic stones.

TABLE 2—*Duration of Aluminum Gel Therapy*

Years of Aluminum Hydroxide Gel Therapy	No of Patients
2	7
3	6
4	1
5	2
6	4
7	2
Total	22

TABLE 3—*Number of Operations Prior to Aluminum Gel Therapy*

No of Previous Renal Operations	No of Patients
0	4
1.	7
2	3
3	4
4..	2
5	1
6	1
Total	22

Urinary cultures were made in all instances, with the results presented in table 4. Ten of the patients had urinary tract infections with either Bacillus pyocyaneus, Aerobacter aerogenes or Proteus vulgaris. In the 9 patients with positive urinary cultures for Staphylococcus albus, Staphylococcus aureus or Streptococcus, the significance of the culture was questionable because of the absence of microscopic evidence of urinary tract infection. In the presence of renal stones chemotherapy is notoriously ineffective. Except for brief courses of unsuccessful chemotherapy in 4 cases, no attempts were made to treat the urinary tract infection. The coincidence of chronic urinary tract infection with ammonia-forming organisms in approximately half the patients presented an additional difficulty for which other therapeutic regimens, such as the use of acidifying agents, are admittedly inadequate.

The results of this aluminum gel and dietary regimen are given in table 5. For the critical evaluation of the results of this method of therapy, it seemed best to tabulate the data in terms of the number of kidneys which had previously been, or were still, the site of calculi. In the 22 patients under study there were 36 kidneys which fulfilled these requirements. Prior to the institution of therapy, five patients had had a nephrectomy for nephrolithiasis, and in three there was a history of calculus formation confined to one kidney. The three uninvolved kidneys in this latter group were excluded from consideration in the tables, inasmuch as it was not possible to decide whether their continued freedom from calculi during therapy might have existed in its absence. Some overlap is evident in table 5, because in some cases changes were observed in different directions in each kidney with respect to the stones in situ. Thus, of the kidneys listed under group *A,* two were in patients with stones in situ in the opposite kidney; hence, these patients are also listed in group *B.*

TABLE 4—*Incidence of Urinary Tract Infection*

Urine Culture	No. of Patients	Microscopic Evidence of Infection
A aerogenes	2	1
P. vulgaris	1	1
A. aerogenes and B pyocyaneus	2	2
P. vulgaris and B pyocyaneus	1	1
P. vulgaris, B pyocyaneus and A aerogenes	3	[illegible]
Escherichia coli	2	2
Esch coli and P. vulgaris	1	1
Staph albus or Staph. aureus, Streptococcus or sterile	10	1
Total	22	

Of the six kidneys (five patients) from which stones had been removed and from which they were still absent when therapy was instituted, in no instance did stones recur. Of 30 kidneys (19 patients) with stones in situ, the stones disappeared completely from four (two patients), decreased in three (three patients) and exhibited no change in 20 (13 patients). These favorable results comprise 90 per cent of the group of kidneys with stones in situ at the institution of therapy. In three kidneys (three patients) the calculi increased approximately 1 cm. in greatest diameter during therapy, without further increase in size during the succeeding year. There were no associated changes of adverse clinical significance, in terms of either symptoms or renal function. It is of interest that one of the patients was pregnant when therapy was instituted and was receiving additional calcium as calcium lactate. She received continuous aluminum gel therapy; the stones present in both kidneys were passed spontaneously, and

TABLE 5—*Results of Aluminum Hydroxide Gel Therapy in Twenty Two Patients**

Group	Renal Status	No of Patients	No of Kidneys	Percentage of Total
A	No renal calculi present	5	6	....
	No recurrence		6	100 0
B	Renal calculi present	19	30	..
	Disappearance of calculi	2	4	13 3
	Decrease in size of calculi	3	3	10 0
	No change in size of calculi	13	20	66 7
	Increase in size of calculi		3	10 0

* Thirty six kidneys had contained phosphatic calculi at some time prior to therapy Five patients had a previous nephrectomy for nephrolithiasis Three kidneys that had never been the site of calculus formation before or during therapy have been excluded from the tables (see text)

she was delivered of a full term healthy infant. In at least four patients not included in this series because of their voluntary or inadvertent discontinuation of therapy, within a year there was a decided increase in the size of the calculi of such magnitude as to require operative removal.

---

[10] Dr Victor F Marshall and his staff of the Department of Urology of the New York Hospital evaluated the roentgenologic changes in these patients during therapy

It was of interest to correlate the changes in the size of the calculi with the average 24-hour urinary excretion of phosphorus during aluminum gel therapy. The urinary phosphorus excretion of a patient on the average American diet is approximately 1 Gm. per 24 hours. Eighty per cent of the patients excreted less than 500 mg. per 24 hours (table 6). In this group were included three kidneys (three patients) in which there was a small increase in the size of the stones. There was no change in size of the calculi in three kidneys (two patients) whose urinary phosphorus excretion per 24 hours ranged from 600 to 800 mg. It is perhaps of relevance that both of these patients were free of urinary tract infection.

Since on the institution of treatment the diet and aluminum gel dosage of each patient were adjusted to achieve a urinary phosphorus excretion of approximately 300 mg. per 24 hours, the variations from this level over the subsequent years of therapy indicate the extent to which deviations from the prescribed diet or medication are likely to occur in an ambulatory group of patients. That these variations were not attributable to any diminished effectiveness of aluminum gels was evident from repeated studies on individual patients under controlled conditions in the Metabolism Ward. Occurrence of these variations emphasizes the necessity for frequent 24-hour urinary phosphorus analyses for the proper regulation of this therapeutic regimen.

Table 6.—*Relationship of Recurrence or Change in Calculi Size to Average Urinary Phosphorus Excretion*

Average Urinary Excretion			No. of Kidneys			
Phosphorus Mg./24 Hr.	Calcium Mg./24 Hr.	No. of Infected Urines	No Recurrence	Decrease in Size	No Change in Size	Increase in Size
100 to 200	166	3	1	3	4	..
200 to 300	103	5	1	1	5	2
300 to 400	249	1	..	..	4	1
400 to 500	271	3	4	3	4	..
500 to 600	...	..	..	..	..	..
600 to 700	243	0	..	..	1	..
700 to 800	275	0	..	..	2	..

Data are given on 2 cases to provide more detailed information on the history and laboratory observations prior to and during aluminum gel therapy. Patient J. C. (case 2) had the uniformly low urinary phosphorus excretion which can be obtained with prolonged aluminum gel therapy by a patient who is scrupulous in his adherence to the prescribed regimen. His stormy calculous history prior to aluminum gel therapy would seem to justify one's attributing his subsequent freedom from stones to the effects of this regimen. In patient M. T. (case 1) treatment was complicated by impaired renal function and severe infection of the urinary tract with ammonia-forming organisms, with the urinary p_H at levels of 8.0 to 8.5. After two years of therapy a staghorn calculus was removed from one kidney. Despite persistent infection on that side and an alkaline urine highly favorable to phosphatic stone formation, that kidney has remained stone free for four years since operation, during which time the patient has been receiving continuous aluminum gel therapy. Repeated ureteral catheterizations demonstrated that this kidney was secreting urine throughout the period of observation.

REPORT OF CASES

Case 1.—*History.*—M. T., a man aged 59, in December 1937 had left flank pain with chills and fever. In April 1938 he had left flank pain and pyuria. In July 1938, he had left and right flank pain; roentgenograms showed bilateral renal calculi, and he passed several calcium phosphate calculi. In March 1939 he had right renal colic with the passage of a calculus. In April 1939 he had right flank pain and passed a right ureteral calculus. In February 1940, during right flank pain, roentgenograms revealed a tremendous increase in calculi and no renal function on the right; he had a right ureterolithotomy and a left pyelolithotomy. In May 1940 he had a right pyelolithotomy; at this time roentgenograms showed small bilateral calculi with good excretory function. Follow-up roentgenograms displayed calculi increasing in size, with no excretory function on the left and slight function on the right.

Laboratory Results.—The serum calcium level was 10.40 mg. and serum phosphorus 3.31 mg., per 100 cc. The alkaline phosphatase level was 3.8 Bodansky units. The total protein was 7.35 Gm. and the blood urea nitrogen 18 mg., per 100 cc. Urine cultures showed A. aerogenes and B. pyocyaneus (sulfadiazine, penicillin, streptomycin and aureomycin resistant). The renal function test showed 63 per cent phenolsulfonphthalein clearance. Stone analysis revealed calcium carbonate and phosphate.

Course.—In February 1944 roentgenograms showed bilateral large staghorn calculi; the patient was given amphojel,® 30 cc. four times a day. He had increasing dysuria and frequency. Roentgenograms showed no change; cystoscopy revealed cystitis. The blood urea nitrogen was 30 mg. per 100 cc., urea clearance 23 per cent and phenolsulfonphthalein 38 per cent. In March 1946 a left nephrolithotomy was performed. On April 14, 1950 roentgenograms showed no change in staghorn calculus on the right, no evidence of calculi on the left and bilateral minimal renal function. Urinary phosphorus excretion has averaged 250 mg. per day.

Case 2.—*History.*—J. C., a man aged 37, in 1938 had dysuria. In 1940 a left nephrolithotomy was performed. In 1941 he fractured his tibia and fibula; he was immobilized 10 weeks and calculi recurred. Then he had a left nephrolithotomy. In 1943 he had left nephrectomy, six months later a right nephrolithotomy and three months later a right nephrolithotomy. In 1945 he had staghorn calculus on the right, and a right nephrolithotomy was performed.

Laboratory Results.—The serum calcium level was 10.82 mg. and the serum phosphorus 3.30 mg., per 100 cc. The alkaline phosphatase determination was 2.6 Bodansky units and the total protein 7.6 Gm. per 100 cc. Urine culture grew P. vulgaris and A. aerogenes. Tests of renal function showed phenolsulfonphthalein excretion 93 per cent and urea clearance 55 per cent. Stone analysis revealed calcium phosphate plus carbonate.

Course.—In March 1945 the patient was started immediately postoperatively on a regimen of amphojel® therapy. At present he shows no roentgenographic evidence of calculi (Nov. 15, 1949). Results of treatment of this patient with various aluminum gels are shown in table 7.

COMMENT

Certain aspects of this therapeutic regimen seem to be well established by this study. It is evident that patients can take aluminum gels in amounts of 120 to 180 cc. daily for as long as seven years without experiencing untoward effects which could be attributed to this medicament. Constipation, when it occurred, was readily corrected by the judicious use of cathartics. There were no changes in plasma carbon dioxide content. Relief from dysuria with clearing of the urine was frequently reported, presumably as a result of the prevention of amorphous phosphate precipitation within the urinary tract. Most of the patients tolerated the medicament well. A few complained of some nausea and distaste at the beginning of treatment, but this disappeared on its continuation. There were individual preferences on the score of taste and consistency for each of the aluminum gels used, but after the introduction of basaljel® this basic aluminum carbonate gel has been almost without exception the preferred preparation.

With all preparations the objective of treatment could be achieved, namely, a significant reduction of urinary phosphorus. The most efficient on the basis of amount and aluminum content is basaljel.® In comparative studies it proved approximately 35 per cent more effective in lowering urinary phosphorus than the standard aluminum hydroxide gel preparation. However, the aluminum hydroxide tablets are often convenient to use because of their smaller bulk. In its effects on urinary phosphorus, each 0.6 Gm. aluminum hydroxide (amphojel®) tablet is equivalent to approximately 3.5 cc. of basaljel.® The time of administration of aluminum gels, one hour after meals and at bedtime, was chosen to secure the greatest efficiency with a given total dose.

TABLE 7.—*Correlation of Period of Aluminum Gel Therapy with Range of Laboratory Results in Case 2*

Date	Therapy	No. Determinations	Urinary Phosphorus Mg./24 Hr.	Urinary Calcium Mg./24 Hr.	Urinary Creatinine Gm./24 Hr.
5/11/45 to 1/18/46	Amphojel,® 40 cc. q.i.d.	5	0 to 286	58 to 161	1.48 to 1.96
1/18/46 to 4/12/46	Amphojel,® with magnesium trisil., 40 cc. q.i.d.	3	224 to 390	92 to 116	1.58 to 1.96
4/12/46 to 10/25/46	Amphojel ® tablets, 10 q.i.d.	2	238 to 442	96 to 152	1.37 to 1.89
10/25/46 to 11/ 3/47	Amphojel,® 40 cc. q.i.d.	7	201 to 394	66 to 133	1.33 to 1.60
11/ 3/47 to 1/ 8/48	Basaljel,® 20 cc. q.i.d.	1	197	69	1.38
1/ 8/48 to 4/ 3/48	Basaljel,® 30 cc. q.i.d.	2	183 to 347	53 to 74	1.42 to 1.45
4/ 3/48 to 9/12/48	Amphojel ® with magnesium trisil., 40 cc. q.i.d.	3	194 to 332	45 to 68	1.28 to 1.40
9/12/48 to 4/ 4/50	Basaljel,® 30 cc. q.i.d.	9	96 to 290	54 to 133	1.23 to 1.56

The dietary part of this regimen has its basis in the fact that the extent to which aluminum phosphate formation takes place in the intestinal tract to reduce urinary phosphorus excretion is dependent on the quantitative relationship between the phosphorus intake and the dosage of aluminum gel. Hence, with a fixed phosphorus intake at any given level, the aluminum gel dosage can be adjusted to achieve any desired urinary phosphorus excretion, even to the extent of its complete elimination. The chief problem, therefore, is one of gaining the patient's cooperation in having him follow a diet with a constant phosphorus content. This is most readily achieved with a menu which is flexible enough to conform with food habits and accessibility. These criteria are satisfied by the moderately low, constant phosphorus diet used in this study which also meets optimal dietary standards in other respects.

Since the effectiveness of this regimen is dependent on the constancy of both the diet and the medication, the only way to ascertain how faithfully it is adhered to is by frequent determinations of the 24-hour urinary phosphorus excretion. The importance of this check for achieving the objective of the therapeutic regimen cannot be overemphasized. Additional evidence has been provided in this study also for the manner in which aluminum gels lead to a lowered urinary phosphorus excretion. Freeman and Freeman [6] had earlier shown the striking fall in serum inorganic phosphorus resulting from the administration of aluminum gels in renal disease with hyperphosphatemia. With the subjects in our series who had normal renal function, values for fasting inorganic serum phosphorus were not significantly changed by aluminum gel therapy. When analyses were made throughout the day, during the period over which an aluminum gel was administered, a distinct lowering of the serum inorganic phosphorus level was regularly observed, as compared with control observations. This would provide a smaller load of phosphate ion to the renal tubules and permit its more complete tubular resorption. If these lower average serum inorganic phosphorus values depress parathyroid activity during aluminum gel administration, the depression is extremely brief and readily reversible, even after continuous therapy of many years' duration, as indicated by the rapidity with which the original serum and urinary phosphorus values return on discontinuation of therapy.

With respect to other possible deleterious metabolic effects of continuous aluminum gel administration, balance studies would suggest that none of any consequence occur.[11] The patients remain on positive phosphorus balance with this dietary intake. Transient increases in urinary calcium excretion are occasionally observed as well as a negative over-all calcium balance of minor magnitude. With more chronic administration of aluminum gels there is generally no significant increase in urinary calcium output over control levels. No demineralization of the skeleton has been observed, nor were there any appreciable changes in the serum calcium or alkaline phosphatase levels.

The evaluation of the therapeutic results should be tempered by an appreciation of the relatively small number of patients included in this study. These patients were selected with a view to enhancing the evaluation of a small series. A high percentage had required frequent operative intervention, and in more than half of the cases there was gross infection of the urinary tract of the type favorable to stone recurrence. When one makes allowance for the variable incidence of phosphatic calculus recurrence reported with other therapeutic procedures, the results with aluminum gel therapy in this series appear to be distinctly superior. In the 22 patients studied there were 36 kidneys which had been sites of previous phosphatic calculi or had stones present at the time treatment was instituted. There were no recurrences in the six kidneys from which the calculi had previously been removed; and in only three of the 30 kidneys with stones in situ was there any increase in the size of the stones: this was of small magnitude and not progressive. Stones were passed completely from four kidneys and reduced in size in three. In contrast with these favorable results is the experience with four patients who voluntarily discontinued therapy. In all four, stone growth of such magnitude occurred as to require operative removal.

---

[11] Shorr, E., and Carter, A. C.: Unpublished data.

Uncertainty still exists as to the minimal levels of urinary phosphorus excretion necessary for these therapeutic effects. Twenty of the 22 patients had an average 24-hour urinary phosphorus output below 500 mg. In this group, 3 patients had a small increase in the size of the stone. In one the increase began during a six month period in which aluminum gel therapy was inadvertently discontinued. In each instance there has been no further increase during the past 12 months. In the two patients whose 24-hour output of phosphorus ranged between 600 and 800 mg. there was no change in the size of the stone. Both these patients had uninfected urines.

It is evident that a number of factors are involved in establishing the critical level for urinary phosphorus which would protect against phosphate precipitation. Among these are the calcium and citric acid content of the urine, the 24-hour urine volume, the presence of infection with alkalinizing organisms, the condition of the renal pelvis and the existence of anatomic interference with free emptying of the pelvis. More extended experience will be required for the proper evaluation of all these factors as they bear on the levels of urinary phosphorus necessary to prevent recurrences.

Although for the purposes of the present study it was considered undesirable to introduce other variables, such as chemotherapeusis, a highly daily urinary output, ureteral dilation and other surgical procedures, these should also be employed, whenever appropriate, as adjuvants to aluminum gel therapy. It is also not certain how long therapy should be continued. With stones in situ and in the presence of urinary tract infection or stasis, the situation would seem to call for continuous therapy until the underlying condition is corrected. However, with a calculus-free and otherwise normal kidney, it is not unlikely that therapy need not be continued for as long as in the present study. Observations are now in progress on the effects of discontinuation of aluminum gel therapy in the suitable patients in the present series.

This therapeutic regimen is not intended to replace surgical intervention, when indicated; indeed, with the greater assurance which this regimen seems to provide against stone recurrence, surgical removal with postoperative management by aluminum gels would appear to be the preferable approach. The preoperative and immediate postoperative use of aluminum gels has been found by Dr. Victor F. Marshall of the Department of Urology of the New York Hospital to carry with it the advantage of preventing the rapid reformation of phosphatic precipitates in the urinary tract and drainage tubes; this procedure is now routinely employed on his service.

This regimen should also be considered as an adjuvant for the management of conditions requiring enforced immobilization, with its hazard of phosphatic stone formation in the urinary tract. One such study with a group of paraplegics has been made by Satterthwaite,[12] who reported almost complete protection against calculus formation by this regimen, when used in conjunction with postural drainage. Finally, its use may be recommended in systemic conditions, such as hyperparathyroidism in the absence of operative correction, and as an adjuvant in the management of other types of stones. Thus, when alkalinization is resorted to in persons who are uric acid or cystine stone formers, it is not uncommon for this procedure to lead to phosphatic stone formation. Coprecipitation of phosphates with calcium oxalate is also reported to occur with regularity when calcium oxalate stones become larger than 100 mg.[13] The reader is referred to another publication from this laboratory for a more detailed discussion of the physicochemical factors involved in the solubility of calcium and phosphate ions, and their bearing on the present therapeutic regimen.[5]

CONCLUSIONS

The rationale for the use of aluminum gels in the management of renal phosphatic calculi has been discussed. Reducing urinary phosphorus excretion should serve to prevent the precipitation of the relatively insoluble phosphate ion as the calcium, magnesium or ammonium salt. The usefulness of aluminum hydroxide gels for this purpose has been investigated in a series of 22 patients receiving a constant, moderately low phosphorus diet. Therapy was continued for periods of two to seven years. A variety of aluminum gel preparations were employed, of which basic aluminum carbonate gel (basaljel®) proved the most efficient in reducing urinary phosphorus excretion. The amounts of aluminum gel employed by us in these patients were well tolerated and without harmful effects. The details of the aluminum gel and dietary regimens are given, and emphasis is placed on frequent 24-hour urinary analyses for phosphorus in the control of this therapeutic procedure. Mechanisms leading to the reduction of urinary phosphorus excretion by aluminum gels are discussed. Unlike acidifying agents, aluminum gels are not limited in their effectiveness in the presence of urinary tract infection with ammonia-forming organisms, nor do they introduce the hazard of acidosis when renal functional impairment exists. The therapeutic results in this series of 22 patients are regarded as highly favorable, to judge from the absence of recurrences in six kidneys which were the sites of previous stone formation and from the fate of the stones in 30 kidneys which contained calculi at the time treatment was instituted.

---

[12] Satterthwaite, R. W.: Read before the American College of Surgeons, Section on Urology, New York, 1947

[13] Thompson, H. E.; Steadman, R. T.; Benjamin, J. A., and Scott, W. W.: Quantitative Microchemical and Spectrographic Data on Renal Calculi and Their Relation to Infection, J. Urol. **51:** 259-271 (March) 1944.

Incidence of Leukemia Among Physicians.—Hardly a patient enters a hospital in this country these days, without being exposed to x-rays once or many times. The great value of such procedures cannot be questioned, as undoubtedly the information derived from such diagnostic procedures is life saving in many instances. Second, it has been clearly established that leukemia is more likely to develop in radiologists who are repeatedly exposed to this agent. This had been emphasized by Dunlap, who collected from the literature 24 cases of leukemia in those who were exposed to x-ray for long periods. Furthermore, Henshaw and Hawkins reported that leukemia is recognized approximately 1.7 times more commonly among physicians than among the white male population. They emphasize that their findings are in accord with the experimental observation on animals that exposures to roentgen rays cause an increase in the incidence of leukemia. Of even greater significance is the report of Ulrich, who studied over 34,000 obituary notices of physicians appearing in The Journal of the American Medical Association between the years 1935 and 1944. He observed that the incidence of leukemia among 205 physicians listed as radiologists was 3.9 per cent, which is more than eight times as great as the incidence (0.44 per cent) among those not listed as radiologists. This observer believes that this rather striking difference is substantial evidence that exposure to x-ray is a potential cause of leukemia.—Cyrus C. Sturgis, An Evaluation of the Nature, Treatment, and Prognosis of Leukemia, *The Proceedings of the Institute of Medicine of Chicago,* Oct. 15, 1950.

Clinical Notes, Suggestions and New Instruments

BILATERAL TESTICULAR TUMORS FOLLOWING BILATERAL ORCHIOPEXY

GUSTAVE KAPLAN, M.D.
and
BERNARD ROSWIT, M.D.
Bronx, N. Y.

The incidence of malignant neoplasms in undescended or ectopic testicles is high. Hinman and Benteen[1] reported an incidence of 7.5 per cent in cryptorchids and stated that tumors occurred 20 times as frequently in undescended testes as in those normally placed. Pace and Cabot[2] sectioned 24 testicles removed from the abdomen and detected microscopic evidence of cancer in three. Gilbert and Hamilton[3] reviewed 7,000 recorded cases of testicular tumors and found 840, or 11 per cent, associated with ectopia, a correlation 48 times higher than expected by chance.

Orchiopexy is not necessarily an effective prophylactic measure against the development of malignant degeneration. Gilbert and Hamilton[3] indicated that 77 tumors occurred in testes previously transferred to the scrotum from an ectopic position. Gilbert[4] analyzed the cases of 58 of a total of 65 patients (two of his own) reported on in the literature in whom malignant testicular tumors developed after orchiopexy.

Following is a report of a patient in whom bilateral testicular tumors developed subsequent to bilateral orchiopexy.

REPORT OF CASE

The patient was a white man aged 41, whose illness dated back to October 1945, at which time he noted a feeling of discomfort in his right testicle, which had begun to enlarge. At the age of 14 the patient had undergone a bilateral operation for cryptorchidism. The right testicle was brought down entirely within the scrotum while the left could be brought down only to the scrotoabdominal junction at the external ring. Physical examination revealed an enlarged right testicle, the size of a golf ball. On October 17 a right orchiectomy was performed. The pathological diagnosis was "seminoma" (fig. 1). Subsequently, postoperative irradiation was given. The lower retroperitoneal node-bearing area received a depth dose of 2,300 r and the upper retroperitoneal node-bearing area received 2,900 r. The depth dose to the right inguinal region was 2,000 r. All therapy was given over a period of 71 days. The following factors were used: 220 kv., 15 ma., Thoraeus filter, half-value layer 2 mm. Cu. and 50 cm. skin-target distance. The size of the abdominal field was 10 by 15 cm. and that of the inguinal region 6 sq. cm. Roentgenograms of the chest and excretory urograms showed normal conditions.

The patient was readmitted in November 1949, because of swelling in the left inguinal area which he first noted approximately six weeks prior to admission. There was no associated pain or tenderness. Physical examination revealed the absence of the right testicle. A large, hard, fixed mass, the size of a small plum, involved the left testicle in the area of the external ring.

On November 25 a left orchiectomy was performed. At operation an irregular testicular mass was observed lying within the inguinal canal. The tumor mass was bound down in firm scar tissue. The cord structures were thickened and indurated with invasion of tumor tissue, and the presence of tumor involving small lymph nodes was noted. The testicular tumor mass was freed and removed with the cord.

The microscopic diagnosis was "complex teratocarcinoma with choriocarcinoma" (fig. 2).

On December 15 approximately 10,000 mouse units of chorionic gonadotropin per liter of urine was reported. On December 18 a roentgenogram of the chest showed metastatic nodules in both lower lung fields. The excretory urogram was normal. In view of the absence of symptoms, the presence of metastatic nodules in the lungs and the radioresistance of the underlying disease, roentgen therapy was not deemed advisable.

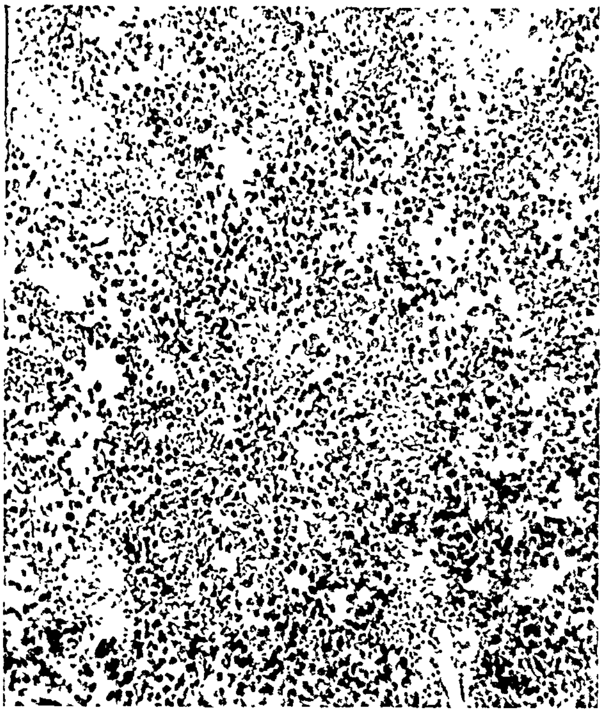


Fig. 1.—Seminoma, right testicle

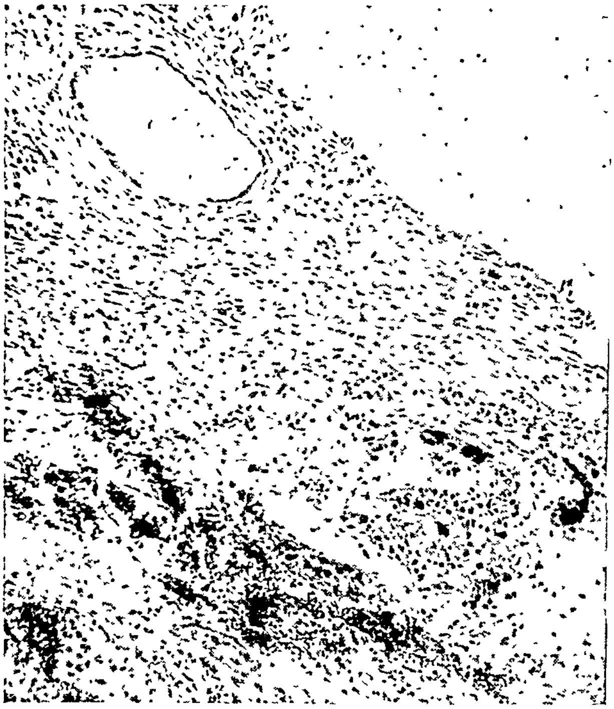


Fig. 2. Complex teratocarcinoma with choriocarcinoma, left testicle

---

From the Radiotherapy Section of the Radiological Service, Veterans Administration Hospital.

Reviewed by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the results of their own studies and do not necessarily reflect the opinion or policy of the Veterans Administration.

[1] Hinman, F., and Benteen, I. H.: Relationship of Cryptorchidism to Tumor of the Testes, J. Urol. **35**:378-381 (March) 1936.

[2] Pace, J. M., and Cabot, H.: A Histological Study in 24 Cases of Retained Testes in the Adult, Surg., Gynec. & Obst. **63**:16-22 (July) 1936.

[3] Gilbert, J. B., and Hamilton, J. B.: Studies in Malignant Testis Tumors: Incidence and Nature of Tumors in Ectopic Testes, Surg., Gynec. & Obst. **71**:731-743 (Dec.) 1940.

[4] Gilbert, J. B.: Studies in Malignant Testis Tumors: Tumors developing After Orchidopexy; Report of 2 Cases and Review of 63, J. Urol. **46**:740-747 (Oct) 1941.

COMMENT

Undescended testicles must always be considered from the viewpoint of potential malignancy. Orchiopexy does not prevent malignant change, nor does it decrease its incidence. Its value lies in providing an opportunity for close observation of a testicle in which the incidence of malignant neoplasia is high. Orchiopexy also encourages spermatogenesis and permits the repair of hernias that accompany cryptorchidism.

SUMMARY

The case of a patient in whom bilateral testicular tumors of different histological varieties developed after bilateral orchiopexy is presented.

REVERSAL OF AMINOPTERIN AND AMETHOPTERIN TOXICITY BY CITROVORUM FACTOR

EMANUEL B. SCHOENBACH, M.D.
EZRA M. GREENSPAN, M.D.
and
JACOB COLSKY, M.D.
Baltimore

The potent folic acid antagonists, aminopterin (4-amino folic acid) and amethopterin (4-amino-N^{10}-methyl folic acid) are being extensively employed for the amelioration of certain types of leukemia and other neoplastic diseases.[1] These antimetabolites induce a folic acid deficiency, manifested in patients by gastrointestinal cramps, diarrhea, hemorrhage, ulceration of the palate and oral mucous membranes, leukopenia, which may progress to an aplastic anemia, and alopecia. The appearance of these toxic manifestations may be delayed, and the cumulative toxic dose of drug may be exceeded before signs of toxicity become evident. For this reason, the dosage employed of these amino-substituted derivatives of folic acid is often less than that necessary for therapeutic efficacy. These toxic manifestations have not been reversible clinically when folic acid, liver extract or vitamin B_{12} has been administered. Experimental observations have demonstrated that under certain specific conditions folic acid can completely prevent but not reverse both the toxic[2] and the antineoplastic effects[3] of these antimetabolites in mice. However, when folic acid was administered simultaneously with or after injections of aminopterin, no protection from the lethal toxicity of the latter compound was evident,[2] regardless of the route of drug administration.

The failure to reverse these toxic manifestations of induced folic acid deficiency with folic acid has been a distinct deterrent to the optimal administration of the anti-folic-acid preparations, despite the accumulated evidence that they are beneficial in the treatment of certain forms of leukemia.

A new growth factor[4] necessary for the growth of the bacillus Leuconostoc citrovorum, designated as the "citrovorum factor," has recently been reported to prevent the toxicity of aminopterin in mice and rats.[5] The anti-folic-acid compounds may inhibit the conversion of folic acid into a metabolically more active compound, which is, or closely resembles, the citrovorum factor. When citrovorum factor was administered simultaneously with, or even subsequent to, lethal doses of aminopterin, we observed complete protection from the toxic manifestations in mice, in contrast to observations on the inefficacy of folic acid in these circumstances.[6] No studies on the effect of citrovorum factor on established toxic reactions in man have been reported.

REPORT OF CASES

CASE 1.—A 56 year old Negro man was subjected to a midthigh amputation of the left leg in April 1950 for a leiomyosarcoma in the upper fibula region. Several weeks thereafter, roentgen examination of the chest disclosed parenchymal shadows in the lungs, which were interpreted as multiple pulmonary metastases. Roentgen therapy, to a total of 2,000 r to each of four chest ports, was administered over a period of 3½ weeks, without any symptomatic or objective response.

On June 21, oral amethopterin therapy was begun. The patient received 10 mg. daily. On the ninth day of treatment, when a total of 90 mg. had been administered, he complained of a burning sensation in the mouth. Drug therapy was continued with the same daily dose. Three days later, after he had received a total of 120 mg. of amethopterin, superficial ulcerated lesions of the buccal mucosa, the right part of the hard palate and the gingival margin appeared. The white blood cell count, which had been 4,600 cells per cubic millimeter prior to treatment on June 21, fell progressively so that by July 3, the total count was 2,100 per cubic millimeter. The dosage of amethopterin was continued unchanged. The ulcerated lesions became somewhat more extensive and painful and assumed a typical appearance, with a central grayish membrane surrounded by a hemorrhagic zone. Each ulcer was 5 to 10 mm. in diameter. No gastrointestinal or hemorrhagic manifestations were present. On July 7, the total leukocyte count was 2,450 per cubic millimeter, with a distribution of 84 per cent neutrophils, 12 per cent lymphocytes, 2 per cent eosinophils and 2 per cent monocytes. Results of other hematological and chemical studies of the blood were unchanged when compared with those of the period preceding anti-folic-acid therapy.

An attempt to evaluate the ability of citrovorum factor to reverse these amethopterin-induced lesions was initiated on July 9, after the patient had received a total dose of 180 mg. during the preceding 18 days. The dosage of amethopterin was maintained unchanged, and 40,000,000 units of citrovorum factor (synthetic)[7] was administered intramuscularly daily. Each milliliter contained 20,000,000 citrovorum factor units, which represent an equivalent of 7.0 mg. of folic acid by microbiologic assay. The citrovorum factor was dissolved in 0.8 per cent sodium chloride solution containing 0.01 M phosphate buffer at p_H 7.16.

The patient received the combined treatment with amethopterin and citrovorum factor for a total of seven days. On the third day of this regimen, the ulcers appeared to be somewhat smaller and the patient experienced less pain. Further regression of the ulcers was noted on the fourth day, followed by complete healing after the fifth day of citrovorum administration, despite the continued daily ingestion of 10 mg. of amethopterin. The use of citrovorum factor was discontinued two days thereafter, but the amethopterin dosage was maintained. The total white blood cell count on the sixth day of the combined regimen was 4,200 per cubic millimeter, with no significant alterations in the differential count. Ten days after the administration of citrovorum factor was discontinued, the return of typical mouth lesions induced by folic acid antagonists was observed. No effect on the neoplastic lesions was observed during the administration of amethopterin, either alone or combined with the citrovorum factor.

The citrovorum factor (synthetic) was supplied by the Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

From the Department of Preventive Medicine, the Johns Hopkins University School of Medicine, and the Clinical Research Unit, National Cancer Institute, United States Marine Hospital.

These investigations were aided in part by a grant to the Department of Preventive Medicine *from the American Cancer Society recommended* by the Committee on Growth, National Research Council.

[1] Farber, S.: Some Observations on Effect of Folic Acid Antagonists on Acute Leukemia and Other Forms of Incurable Cancer, Blood **4:** 160-167, 1949. Sacks, M. S.; Bradford, G. T., and Schoenbach, E. B.: Response of Acute Leukemia to Administration of Folic Acid Antagonists, Aminopterin and A-Methopterin: A Report of 14 Cases, Ann. Int. Med. **32:** 80-115, 1950.

[2] Greenspan, E. M.; Goldin, A., and Schoenbach, E. B.: Studies on Mechanism of Action of Chemotherapeutic Agents in Cancer: II. Requirements for Prevention of Aminopterin Toxicity by Folic Acid in Mice, Cancer **3:** 856-863, 1950.

[3] Goldin, A.; Goldberg, B.; Ortega, L. G., and Schoenbach, E. B.: Reversal of Aminopterin-Induced Inhibition of Sarcoma 180 by Folic Acid, Cancer **2:** 857-862, 1949.

[4] Sauberlich, H. E., and Baumann, C. A.: A Factor Required for Growth of Leuconostoc Citrovorum 8081, J. Biol. Chem. **176:** 165-173, 1948. Nichol, C. A., and Welch, A. D.: Synthesis of Citrovorum Factor from Folic Acid by Liver Slices: Augmentation by Ascorbic Acid, Proc. Soc. Exper. Biol. & Med. **74:** 52-55, 1950.

[5] Nichol, C. A., and Welch, A. D.: On the Mechanism of Action of Aminopterin, Proc. Soc. Exper. Biol. & Med. **74:**403-411. 1950.

[6] Greenspan, E. M.; Goldin, A., and Schoenbach, E. B.: Studies on the Mechanism of Action of Chemotherapeutic Agents in Cancer: V. Influence of Citrovorum Factor and Folic Acid on Toxic Manifestations of Aminopterin in Mice, Cancer, to be published.

[7] Brockman, J. A., Jr., and others: Synthesis and Isolation of Crystallin Substance with Properties of New B Vitamin, J. Am. Chem. Soc. **72:** *4325-4326, 1950.*

Figures 1 and 2 represent the appearance of the palate on the seventeenth day of amethopterin therapy and 10 days later, after 280,000,000 units of citrovorum factor had been administered over a period of seven days The amethopterin dosage had been maintained unchanged

Case 2—The patient was a 48 year old white woman who had undergone a radical mastectomy for a neoplasm of the right breast in September 1945 In 1948 metastases to the left pleura occurred, with massive recurrent sanguineous effusion in which malignant cells had been observed on several occasions Numerous thoracenteses had been performed, with prompt reaccumulation of the fluid and persistence of symptoms From Nov. 9, 1949 through Jan 24, 1950, the patient had received amethopterin daily except for a one week interruption because of toxic manifestations The total amount of drug administered was 490 mg. During this period, the effusion disappeared and the patient improved symptomatically She was discharged from the hospital without further medication on Feb 6, 1950

She was readmitted to the Clinical Research Unit of the National Cancer Institute on May 2, because of pain in the left region of the thorax. At this time, roentgenologic examination showed a solid nodular lesion on the pleura of the left lung at the level of the fifth rib in the anterior axillary line She was treated with an oral preparation of aminopterin, 2.0 mg daily, from May 17 to May 31. On May 27 she noted soreness of the tongue and buccal mucosa. Four days later the typical buccal, palatal and gingival ulcerations associated with folic acid antagonist therapy were noted. These ulcerations healed in approximately five days following discontinuation of aminopterin therapy.

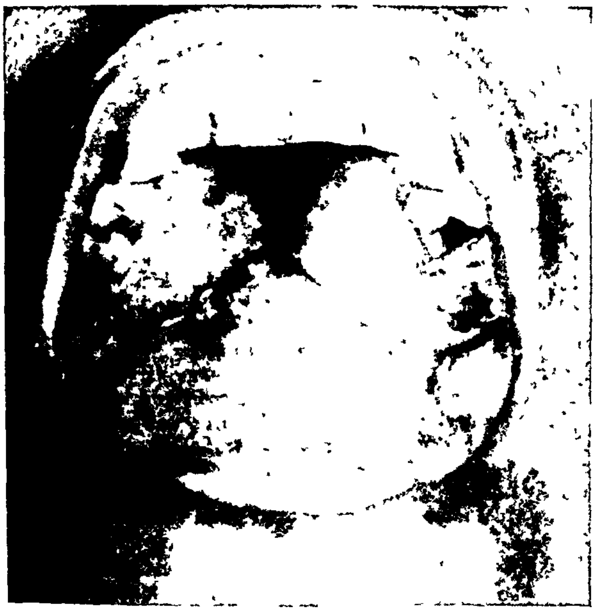


Fig 1 (case 1)—Ulcerations on the right part of the hard palate and gingival margin after the patient had received 170 mg of amethopterin over a 17 day period

The administration of aminopterin was resumed on June 22, with daily doses of 1.0 mg. This dosage was well tolerated, and so on July 3 it was increased to 1.5 mg daily On July 6 the buccal mucosa was noted to be erythematous, and two days later the oral ulcerations reappeared Use of aminopterin was discontinued for one week and resumed on July 15 with a smaller daily dose, so that she received 5.0 mg. a week. The influence of estradiol (20,000 units a day intramuscularly) on the toxic manifestation of aminopterin was studied. When the doses of aminopterin were again increased to 1.5 mg a day and given with the estrogen therapy, oral ulcerations reappeared After an interval of several days, the folic acid antagonist therapy alone was resumed at the lower dosage. On August 28 the doses of aminopterin were increased to 2.0 mg a day administered intramuscularly. One hour prior to each injection of the aminopterin, 15 mg. of the sodium salt of folic acid was injected However, on September 4 stomatitis with mucosal ulcerations appeared On September 5 the amount of folic acid was increased to 75.0 mg. a day, with no detectable improvement of the buccal and palatal ulcerations. In addition, severe dysphagia, anorexia and alopecia became manifest. Beginning September 8, citrovorum factor, 20,000,000 units a day, was administered one hour prior to each dose of aminopterin. No improvement of the stomatitis was apparent, and so after four days (September 12) the doses of citrovorum factor were increased to 40,000,000 units

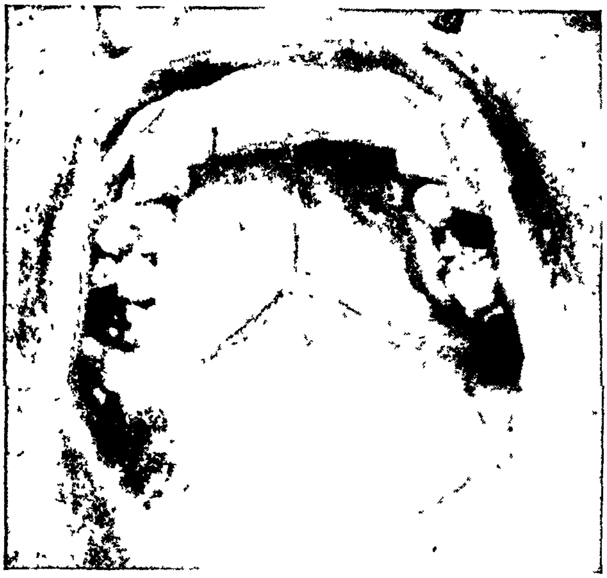


Fig 2 (case 1)—Appearance of palate with complete healing of ulcerations 10 days later, when 280,000,000 units of citrovorum factor concentrate had been administered over a period of 7 days Amethopterin had been continued, and the patient had received a total of 270 mg at this time

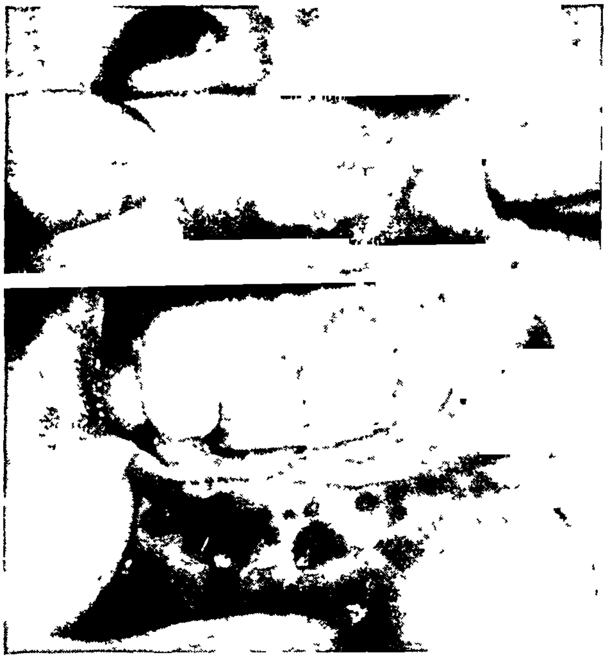


Fig 3 (case 2)—Ulcerations of the oral mucosa as they appeared on Sept 8, 1950 The patient had been receiving 2.0 mg of aminopterin daily

a day. The administration of aminopterin, 2.0 mg. a day, was not interrupted during this period. On September 15 subjective improvement was noted by the patient, and the ulcerations were completely healed by September 18. The administration of citrovorum factor was discontinued, although the parenteral injection of aminopterin was maintained at the same dosage. Ten days later, the ulcerations of the palate, pharynx and buccal mucosa reappeared and the administration of aminopterin was discontinued.

Repeated hematological examinations were performed during this period. A mild leukopenia, with 3,000 to 4,000 cells per cubic millimeter, was observed during the episodes of aminopterin toxicity, which promptly returned during the intervening periods to the pretreatment level of 5,000 to 7,000 cells per cubic millimeter. The differential leukocyte distribution was unaltered. No anemia or hemorrhagic manifestations were noted, although a slight macrocytosis was evident. The appearance of the pleural metastasis was not significantly changed during this period of observation.

The regression of the ulcerations on the palate and buccal mucosa of both patients, despite the continued administration of amethopterin or aminopterin, was striking. The ulcerations appeared to clear more rapidly under this combined therapy than with discontinuation of the folic acid antagonist without the addition of citrovorum factor. The knowledge that citrovorum factor is capable of relieving the toxic manifestations that are caused by the folic acid antagonists should permit more efficient utilization of these latter experimental antineoplastic agents.

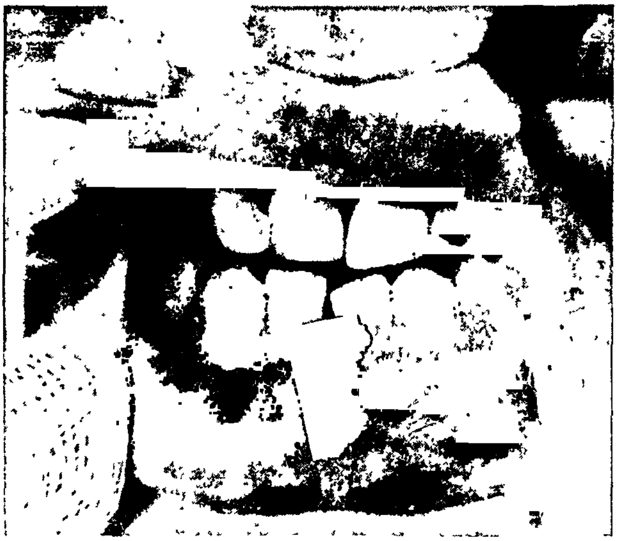


Fig. 4 (case 2).—Appearance of the mucosa 10 days later with healing of the ulcerations. Aminopterin dosage had been maintained unchanged. Citrovorum factor had been administered from September 8 to September 18 in doses of 20,000,000 to 40,000,000 units daily

SUMMARY

In two patients who had received amethopterin or aminopterin for therapy of metastatic neoplasm leukopenia and ulcerated mouth lesions developed. They were treated with citrovorum factor, without discontinuation of the daily dosage of the anti-folic-acid compound. The mouth lesions promptly healed, and the leukopenia disappeared. The reversal of these toxic manifestations by citrovorum factor may be a distinct clinical aid when the folic acid antagonists are employed for the therapy of selected neoplastic states. Our observations in experimental animals and experience with these patients indicate that citrovorum factor, in contrast to folic acid, is able not only to prevent but also to reverse some of the established toxic manifestation of the potent folic acid antagonists, aminopterin and amethopterin.

TREATMENT OF SCLERODERMA WITH PROCAINE

Report of Cases

J. P. TURNER, M.D
Goshen, Ind.
and
F. R. SCHMIDT, M.D.
Chicago

Four patients with scleroderma were treated with multiple intravenous infusions of 0.1 and 0.2 per cent solutions of procaine hydrochloride over a period of several months. A rapid and dramatic improvement was observed in the first patient within 72 hours after this treatment was instituted. The improvement has persisted in this patient as well as in the other three.

REPORT OF CASES

Case 1.—L. S., a white man aged 60, was first seen on Oct. 18, 1949, complaining of slowly progressive and generalized thickening, hardening and discoloration of the skin. He stated further that he had been bothered with recurrent ulcerations and scarring of the tips and bony prominences of the joints of the fingers of both hands and an ulcer on the right foot. In addition, he complained of progressive hoarseness, difficulty in opening his mouth and chewing, inability to use his hands and shortness of breath on exertion. He also had swelling of the ankles and a cough that was productive of sputum. All these symptoms had been present from one to two and one-half years. From Aug. 16 to Oct. 17, 1949, this man had been a patient in another hospital but the skin, the joints and the ulcers had not responded to therapy consisting of application of ointments and bed rest. The family history and his past medical history were noncontributory.

Physical examination revealed a well developed and well nourished white man, slightly dyspneic, with masked facies and a generalized bluish bronze color of the skin. The mucous membrane of the mouth appeared thickened and hyperkeratotic, especially over the pharynx and hard palate. There were moist rales present in the lower lobes of both lungs. The left border of cardiac dulness was at the anterior axillary line. There was a loud, harsh systolic apical murmur transmitted to the axilla and anterior chest wall. The liver was palpable 3 cm below the right costal margin. The fingers of both hands presented a tapered appearance and were semiflexed and practically immobile. The skin over the fingers was reddish blue, shiny, hard to the touch and bound down to the subcutaneous tissues.

The patient was unable to approximate the thumb and forefinger or flex the tips of the digits to the palms. There were a few small ulcerations on the dorsa of the hands over the bony prominences, especially at the metacarpal-phalangeal areas. The creases on the palmar surfaces of the fingers were ironed out. The skin of the trunk, arms, forearms, thighs and legs was bluish bronze, indurated and difficult to pick up between the fingers. There was a marked pitting edema of the feet, ankles and legs. A cratered shallow ulcer 3 cm. in diameter was present on the medial aspect of the right foot.

The microscopic findings confirmed the clinical diagnosis of scleroderma. Results of a biopsy of the skin from the region of the elbow showed generally short rete pegs and a narrow granulosa layer. The underlying dermis was composed of closely arranged collagenous connective tissue fibers showing a tendency toward fragmentation, and the blood vessels were surrounded by a scanty collar of round cells. The Kahn reaction of the blood was negative. The urine showed normal findings. The serum proteins were 6.15 mg., with an albumin-globulin ratio of 1.5 to 1. The serum calcium was 9.5 mg The red blood cell count was 4,100,000, with a hemoglobin value of 12.4 Gm. The white blood cell count was 12,900. The chest roentgenogram showed a 30 per cent cardiac enlargement, with a tortuous sclerotic aorta and increased bronchovascular markings in the lower lobes consistent with passive pulmonary congestion. The electrocardiogram was abnormal but not

---

From the United States Marine Hospital, Chicago, Dr. Turner, Senior Surgeon, United States Public Health Service, and Dr. Schmidt, Consultant in Dermatology.

diagnostic. Examinations and several cultures of the sputum concentrate did not reveal acid-fast organisms.

The patient was first admitted to the surgical service, where the ulcer on the right foot healed under local treatment. He was then transferred to the medical service for further care, on Nov. 2, 1949. Since the patient had pain and limitation of motion of the interphalangeal and metacarpal-phalangeal joints of the hands, it was decided to give him intravenous infusions of procaine, following the suggestion of Graubard and Peterson.[1] He received from 0.5 to 0.8 Gm. of procaine hydrochloride with each infusion in a 0.1 to 0.2 per cent concentration in 10 per cent dextrose and water. A prophylactic dose of 0.1 Gm. of a barbiturate was given by mouth 30 minutes prior to each infusion.[2] On the day following the first infusion the patient reported that the itching of his feet had been relieved. After the third daily infusion the patient was able to approximate his thumb and forefinger and flex his fingers to the palmar surfaces and was able to use his hands for writing for the first time in one year. On the seventh day there was definite change in the color of the skin of the face, neck, chest, arms and hands, from the former bluish bronze hue to a pink-red color. The skin, particularly of the chest, was softer in texture and less taut. Because of the immediate response to this treatment it was continued, and an average of two infusions a week and a total of 26 were administered. The skin of the trunk, face, neck and hands has become progressively softer and more elastic, with the greatest improvement being noted on the skin of the trunk. The patient stated that his skin has been approaching its normal color and texture, with the exception of scattered areas of pigmentation. He has become less hoarse, and his expression has become more animated. He has been able to open his mouth wider and chew his food with more ease. The mucous membrane of the mouth, pharynx and pillars has assumed a more normal color and appearance. The ulcers on the bony prominences and tips of the digits have not healed completely. The cardiac decompensation has been controlled with digitoxin and the mercurial diuretics. There was no change in the serum calcium, serum protein or the albumin-globulin ratio.

Case 2.—M. M., a woman aged 50, a patient of Dr. R. Jaramillo, of Santiago, Chile, had been observed for six years. The patient had had increasing difficulty in the use of her fingers and legs. Her face had gradually assumed a mask-like expression, so that the skin of the face was tight, whitish and rigid. She began to have great difficulty in opening her mouth and in swallowing. Several ulcers on the lower legs had healed with scars. New ulcers had appeared on the slightest trauma. All the fingers were rigid and had lost their terminal phalanges. The skin on the back of the hands to a distance 5 cm. above the wrists was tight, fixed and hard. The skin of the lower third of the legs was tight, hard and scarred. There was an atonic ulcer with hard borders on the left leg at the level of the internal malleolus which measured 6 by 6 cm.

Daily infusions of procaine hydrochloride were given for 10 days. A total of 4.4 Gm. of the drug was administered. Biweekly infusions of 0.6 Gm. of procaine were then given for five weeks. The last seven injections were given intramuscularly because venipuncture was too difficult. The patient was able to move her hands with less difficulty after five infusions, and after nine treatments she could swallow more easily. Creases began to reappear on the back of the hands. Later the movements of the hands became much easier. No further improvement was noted during the remaining injections. She left the hospital on Sept. 8, 1950, feeling greatly improved.

Case 3.—E. P., a woman aged 35, a patient of Dr. F. Prats and B. Vaisman, of Santiago, Chile, had noticed an increase in the pigment of her hands and face in 1945. In 1949 the skin became noticeably thickened and the facial creases were obliterated. A diagnosis of scleroderma was made, which was confirmed by biopsy. Previous treatment had failed to stop the progressive limitation of the movements of the joints of the face and hands. Intravenous infusions of procaine hydrochloride in the manner described above were given, totaling 12 Gm. of the drug. This amount was administered over a period of 57 days. The elasticity, color and texture of the skin improved greatly. The mobility of the affected joints began to increase after the sixth infusion. During the last days of the treatment the patient complained of disturbances of hearing. She left the hospital feeling greatly improved and was to return for further treatment.

Case 4.—T. A., a woman aged 47, a patient of Dr. F. Prats and B. Vaisman, of Santiago, Chile, entered the hospital in February 1950 with a diagnosis of scleroderma and Norwegian scabies. The family history and her past medical history were noncontributory. The patient experienced great difficulty in standing, walking and swallowing due to fixation of the joints. After the scabies was cured, eight infusions of procaine hydrochloride were given on successive days until she had received 3.8 Gm. of the drug. The patient's appetite and general condition improved remarkably. The movements of her fingers and jaws grew easier after the fourth infusion. Following the eighth infusion the temperature rose rapidly to 103.1 F. This febrile episode was regarded as due to sensitization to the drug. All treatment was stopped. Two months later the patient developed a chill with high fever when procaine was used as a local anesthetic in obtaining material for a biopsy. Continued attempts to desensitize the patient to procaine with minute quantities injected intradermally failed. Nevertheless, the patient remained greatly improved.

COMMENT

There is always the possibility that the improvement in the first patient could have been due to a spontaneous remission. However, this seems unlikely when one considers that there was progressive improvement noted in the appearance of the skin and in the mobility of the joints throughout the treatment, whereas the ulcers over the bony prominences of the fingers did not seem to be favorably affected by the treatment. It is not likely that rest alone could have accomplished this response, since the patient had had a trial of bed rest for 60 days prior to admission to the hospital with no change in his condition. It is believed that the results of treatment in these cases are encouraging and warrant further investigation.

The infusions should be given slowly. An average of 30 minutes for each infusion is advisable.

SUMMARY

The report of four cases of scleroderma that responded favorably to intravenous infusions of 0.1 and 0.2 per cent procaine hydrochloride in solution are presented.

The remarkable improvement noted was in the color, texture and elasticity of the skin and mucous membranes, and increased mobility of the interphalangeal, metacarpal-phalangeal and temporomandibular joints.

There was no appreciable effect on the course of the ulcers over the bony prominences of the joints of the hand.

122 South Michigan Avenue, Chicago (13).

---

[1] Graubard, D. J., and Peterson, M. C.: Intravenous Procaine in the Management of Arthritis: Interim Report, Connecticut M. J. **13:** 33 (Jan.) 1949.

[2] Johnson, K., and Gilbert, C. R. A.: Intravenous Procaine for Obstetrical Anesthesia, Anesth. & Analg. **25:** 133 (July-Aug.) 1946.

Standards, Usefulness, Nonsectarianism.—In order that a physician may best serve his patients, he is expected to exalt the standards of his profession and to extend its sphere of usefulness. To the same end, he should not base his practice on an exclusive dogma or a sectarian system, for "sects are implacable despots; to accept their thralldom is to take away all liberty from one's action and thought." A sectarian or cultist as applied to medicine is one who alleges to follow or in his practice follows a dogma, tenet or principle based on the authority of its promulgator to the exclusion of demonstration and scientific experience. All voluntarily associated activities with cultists are unethical. A consultation with a cultist is a futile gesture if the cultist is assumed to have the same high grade of knowledge, training and experience as is possessed by the doctor of medicine. Such consultation lowers the honor and dignity of the profession in the same degree in which it elevates the honor and dignity of those who are irregular in training and practice.

From the Principles of Medical Ethics of the American Medical Association.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following article on the recommendation of its Advisory Committee on Clinical Thermometry The Committee members are as follows George Crile Jr, M D, Eugene F DuBois, M D, Steven M Horvath, George Morris Piersol, M D, Chairman, John Talbott, and R E Wilson

Howard A Carter, *Secretary*

ORAL AND RECTAL TEMPERATURES OF MAN

STEVEN M HORVATH
H MENDUKE
and
GEORGE MORRIS PIERSOL, M D
Philadelphia

The so called normal body temperature of a healthy person has been stated categorically to be 98 6 F (37 0 C) Another clinically accepted truism is that the rectal temperature is 1 degree Fahrenheit higher than the oral, or approximately 99 6 F (37 6 C) These values are, of course, merely approximations and can, therefore, be highly misleading

The origin of these figures is somewhat obscure The following review of the literature is an indication that even the value 98 6 F for the oral temperature is undoubtedly incorrect Schaefer[1] summarized the oral temperatures obtained by a group of eight authors who published their material between 1848 and 1898 and found it to be 98 3 F Davy[2] in 1845 reported a mean value of 98 4 F for the oral temperature obtained during the working day, while Pembrey and Nicol[3] found it to be 97 2 F Allbutt,[4] who introduced the present day clinical thermometer, presented his mean value as 98 14 F The first statistical analysis of the oral temperature in man was performed by Whiting[5] The mean oral temperature of 500 criminals was 98 38 F, with a standard deviation of 0 486 Renbourn and Bonsall[6] studied 894 males living in the tropics and found a slightly higher mean oral temperature than was reported by Whiting,[5] their mean value being 98 75 F with a standard deviation of 0 50 A recent report by Carmichael and Linder[7] on 24 normal subjects indicated that the oral temperature between the hours of 8 and 9 a m was 97 8 F, and between the hours of 4 and 5 p m, 98 09 F Ivy[8] obtained the oral temperatures of 276 medical students who were attending class between the hours of 8 and 9 a m His mean figure was 98 1 F Reimann[9] has also reported two different groups of data on the oral temperature of man In his first study, the mean value was 98 2 F, and in the second the value was 99 0 F

Probably the basis for the present day standard of 98 6 F originated from the work presented by two different groups of authors Becquerel and Breschet[10] in 1833 found the mean oral temperature to be 98 6 F Wunderlich[11] undoubtedly compiled the most extensive data on this subject and reported a mean value of 98 6 F It is interesting to note that the mean of all the means reported from 1845 to 1945 turns out to be 98 34 F The range of the means reported is from 97 2 to 99 0 F

A similar discrepancy is observed in the differences between rectal and oral temperatures It is clear that the difference of 1 degree Fahrenheit between these two temperatures, generally accepted by laymen and physicians, does not take into account the data available in the literature

Bardswell and Chapman[12] reported a difference of 0 9 F Wunderlich[11] in his series reported a difference of 0 7 F Renbourn and Bonsall[6] have reported a difference of 0 7 F Carmichael and Linder[7] found the difference to be 1 03 in the morning and 0 82 in the afternoon The largest difference, 1 2 F, was reported by Pembrey and Nicol[3] Burton-Fanning and Champion[13] reported a difference of 0 4 F The textbooks of Best and Taylor and of Macleod report a mean difference of 1 0 F All these observations indicate not only that there is no clear statement of the relation of rectal temperature to the mean body temperature but that there are considerable discrepancies among the data presented by various workers It is also obvious from this review that there is considerable individual variation In view of this confusion it was considered that a controlled study on normal males and females might help to clarify some of the discrepancies that have been noted

METHODS

Thirty-eight females with a mean age of 23 years (range from 19 to 35 years) and 16 males with a mean age of 23 years (range from 21 to 37) were subjects for a measurement of rectal and oral temperatures during 1947-1948 and 1948-1949 This study was conducted during the months of October to January Calibrated clinical thermometers were used, and simultaneous measurements of both oral and rectal temperatures were made while the subjects were lying in bed The thermometers were in place for five minutes The measurement in the morning was made as soon as the subjects awoke, between 6 30 and 7 15 a m The observations in the evening were made again in bed immediately after they had retired, between 10 and 12 p m These subjects were all healthy and had had a physical examination within a month prior to the test, a follow-up examination being made at the completion of the tests

RESULTS

The range of observations extended over a period of 29 to 118 days for both male and female subjects The total number of observations on 38 females was 2,810, a mean of 74 observations on each The mean observations on males were 78, the total number of observations was 1 248 For purposes of statistical analysis the data of only the first 29 consecutive values were considered, since this was the smallest consecutive number obtained in the series Furthermore, since all subjects were included in the analysis, it was possible to have each receive equal weight in the distributions of the combined individual readings and combined means of subjects, i e, the mean of the individual means was equal to the mean of the combined individual values

Since some of the observers read to the closest fifth of a degree Fahrenheit while others attempted to read to the closest tenth of a degree Fahrenheit, the odd readings of the latter were distributed among the even readings in such a manner that the means were completely unaffected and the dispersions were affected negligibly, if at all One woman, who was obviously a very unusual subject, having rectal morning temperatures as high as 104 F, was eliminated from the analysis

---

Dr L Douglass Burdick supervised the statistical analysis

From the Department of Physical Medicine Graduate School of Medicine, and the Department of Social and Economic Statistics, Wharton School of Finance and Commerce, University of Pennsylvania

[1] Schaefer E A Textbook of Physiology London, Young P Pentland, 1898

[2] Davy, J Philos Transact 1845 1850

[3] Pembrey, M S and Nicol B A Observations upon the Deep and Surface Temperature of the Human Body, J Physiol **23**. 386, 1898

[4] Allbutt, cited by Schaefer[1]

[5] Whiting M H On the Association of Temperature Pulse and Respiration with Physique and Intelligence in Criminals A Study in Criminal Anthropometry, Biometrika **11:** 1915 17

[6] Renbourn, E T, and Bonsall, F F Observations on Normal Body Temperatures in North India, Brit M J **1**·909, 1946

[7] Carmichael H T, and Linder F E The Relation Between Oral and Rectal Temperatures in Normal and Schizophrenic Subjects, Am J M Sc **188:** 68, 1934

[8] Ivy, A C What Is the Normal Body Temperature? Gastroenterology **5:** 326 1945

[9] Reimann H A Habitual Hyperthermia A Clinical Study of Four Cases with Long Continued Low Grade Fever, Arch Int Med **55:** 792 (May) 1935, The Problem of Long Continued, Low Grade Fever, J A M A **107:** 1089 (Oct 3) 1936

[10] Becquerel and Breschet Annales de chimie et de physique [2 serie] **59:** 129 1835

[11] Wunderlich, C A Das Verhalten der Eigenwaerme in Krankheiten, Leipzig, 1868

[12] Bardswell, N D, and Chapman, J E Some Observations upon the Deep Temperature of the Human Body at Rest and After Muscular Exertion, Brit M J **1:** 1106, 1911

[13] Burton Fanning, F W, and Champion, S G The Comparative Value of the Mouth, the Rectum, the Urine, the Axilla, and the Groin for the Observation of the Temperature, Lancet **1:** 856, 1903

For each subject in the experiment, six frequency distributions were set up:

(*a*) The first 29 rectal morning readings.
(*b*) All rectal morning readings.
(*c*) All rectal evening readings.
(*d*) The first 29 morning D's (where D is the difference in temperature between rectum and mouth, D = T(R) — T(M).
(*e*) All morning D's.
(*f*) All evening D's.

Throughout the remainder of this paper all temperatures will be given in Fahrenheit units unless otherwise specifically indicated, and the following notation will be used:

T(i), the mean temperature for a given subject.
T(m), the mean of all temperatures obtained for the men.
T(f), the mean of all temperatures obtained for the women.
D(i), the mean of the differences between rectal and oral temperatures for a subject.
D(m), the mean of the differences for men.
D(f), the mean of the differences for women.

For each of the distributions mentioned above, arithmetic means were computed for each subject. In addition, grand means for males and for females were computed (table).

In order to determine whether there was a significant difference between individual mean temperatures, T(i), of men and women with respect to the grand mean and the variability of the means, the following analysis was carried out. The mean of the temperatures for men, T(m), in the morning was 98.2 F.; the mean for the women, T(f), in the morning was 98.6 F. The difference was 0.4. The standard error of this difference was 0.15. When the "t" test familiar to statisticians was applied, it was found that t=2.7, and, with 46 degrees of freedom, the corresponding probability P=0.01. For such a value of P it is customary to conclude that the difference is significant; it follows that over this period of 29 days the mean morning temperature for women was higher than the mean morning temperature for men. In addition to having a higher mean temperature, women exhibited greater variability in their mean temperatures than did men. This was borne out by the following analysis. Variance of the means of men around the grand mean was 0.114; for women it was 0.254. "F"[14] was computed to be 2.23, with 33 degrees of freedom for women and 13 degrees of freedom for men. The probability was found to be between 0.01 and 0.05.

Mean Value for the Rectal Temperatures (F.) and Differences Between Rectal and Oral Temperatures (F.) Observed in a Group of Healthy Adult Males and Females

	Males		Females	
	Rectal (F.)	Difference	Rectal (F.)	Difference
First 29 morning.........	98.2	0.8	98.6	0.8
All morning..............	98.3	0.8	98.6	0.7
All evening..............	99.1	1.0	99.1	0.8

There were 11 men for whom both morning and evening readings were recorded. Of these, 10 showed higher evening than morning means and one showed no change. There were 33 women for whom both morning and evening readings were recorded. Of these, 28 showed higher evening than morning means, 2 showed slightly lower evening than morning means and 3 showed no change. The probability of as many as 10 increases of 11 subjects, if there were really no real difference between morning and evening readings, is only 0.005. For women, the probability is less than 0.001. Both men and women, therefore, have significantly higher mean temperatures at night than in the morning.

The difference between the rectal and oral temperatures for men, D(m), carried to two decimal places, was 0.84. The corresponding figure for women, D(f), was 0.76. The difference was 0.08 and the standard error of the difference was 0.11, giving a "t" value of 0.727. With 46 degrees of freedom the probability attached to "t" was between 0.4 and 0.5. Hence the hypothesis of no real difference between the sexes with respect to the morning D may be accepted. (Even if the difference were highly significant statistically in this case, it would still not be important clinically since it is too small to be helpful.)

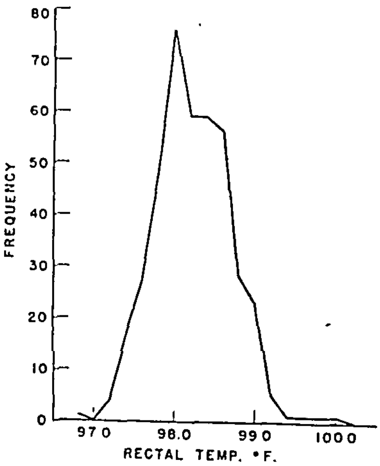


Fig. 1.—Distribution of morning rectal temperatures of male subjects. This curve and those in figures 2, 3 and 4 represent the values obtained during the first 29 consecutive days of observation on each subject.

The estimated variance of D(i) for men was 0.0982; for women it was 0.1309. "F" was found to be 1.332, and, with 33 degrees of freedom for women and 13 for men, the difference in variances was not significant at the 0.05 level. Hence the hypothesis of no real difference between the sexes with respect to variability of morning D(i) may be accepted. As a rough measure of variability, the range was found for each subject for the first 29 rectal morning readings and for the first 29 morning rectal-oral differences. The mean range of rectal temperatures in males was 1.2 F. and in females 1.5 F. The mean range of differences between rectal and oral temperatures was 1.0 F. for males and 1.4 F. for females.

Further analysis of the data was restricted to the first 29 morning values. There was no observable difference between the results obtained from the first 29 and from all the morning values with respect to any of the means. Furthermore, the morning readings of temperature were secured under more controlled and constant conditions. Distributions of morning rectal temperatures and of D's were set up, by sex, for the first 29 morning readings of all subjects combined. The graphs of these distributions are shown in figures 1 through 4.

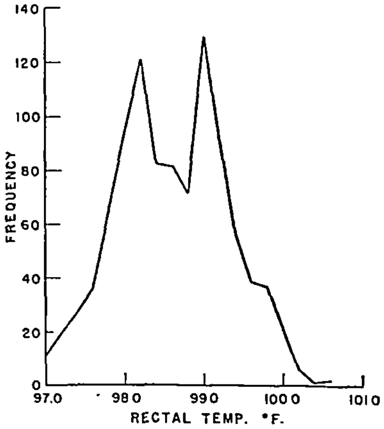


Fig. 2.—Distribution of morning rectal temperatures of female subjects.

Figure 1, illustrating the rectal morning temperatures of males, is unimodal, with a peak at 98.0 F., but is skewed slightly to the left. Normal curves were fitted to the actual distributions of male temperatures, male morning D's and female morning D's and goodness of fit was then tested.[15]

On fitting a normal curve to the distribution of combined rectal morning temperatures of all males, the probability of chi-square was between 0.1 and 0.2. While this is a rather low probability, it is not low enough to warrant rejection of the hypothesis of normality and, therefore, the hypothesis of normality was accepted. Hence it might be concluded that the mean rectal morning temperature of males is 98.2 F., with a standard deviation of 0.47 F., and 68 per cent of all individual readings would lie within the limits of 98.2 plus or minus 0.94, and 99.7 per cent, or practically all, would lie within the limits of 98.2 plus or minus 1.41. This would not, however, be particularly enlightening unless persons did not differ significantly in their individual means and in their individual variances. If individuals do differ signficantly, there would be little value in considering a universe of temperatures without regard to specific subjects.

---

[14] The measure of variability used here is the estimated population variance, where that variance is the mean square deviation from the sample mean (i. e., standard deviation squared) adjusted for degrees of freedom. "F" is the ratio of the larger estimated variance to the smaller. As in the "t" test, there is a given degree of probability attached to "F" for a given number of degrees of freedom. It is customary to conclude that the difference in variance is significant if this probability is less than 0.05.

A further hypothesis was therefore established, i. e., that there is a single universe of temperature values for all men and that *the mean temperature of each person represents a sample* taken at random from that universe. Under this hypothesis, the standard error of the mean for samples of size 29 was computed to be 0.087 F. If the individual means indeed represented random samples taken from the same universe, then only 0.3 per cent of the means should have been more than 3 standard errors away from the grand mean. Four of the 14 means, however, were more than 3 standard errors away from the mean (almost 29 per cent instead of the theoretical 0.3 per cent). The hypothesis that there is a single normal morning temperature for all healthy men was, therefore, rejected.

The L_1 test[16] was applied to see whether there was homoscedasticity among subjects, i. e., do persons all have the same variance in temperatures? The value of L_1 for 14 samples of size 29 was 0.668, which gave a probability of less than 0.01. Two subjects could be considered "extreme," but even after their variances were eliminated the probability was still less than 0.01 It may be concluded, therefore, that men differ in the variability of their individual readings; i. e., there is no single "normal range" of temperatures applicable to all men.

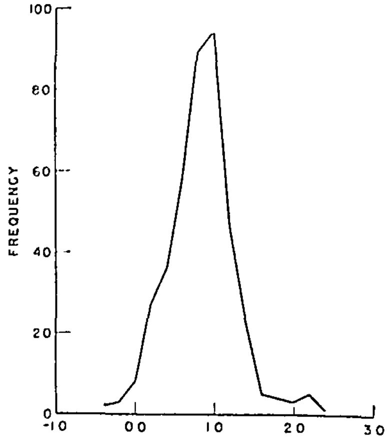


Fig 3.—Distribution of the differences between rectal and oral temperatures of male subjects

The distribution of rectal morning temperature readings of all females combined (fig. 2) was definitely bimodal, with one peak at 98.2 F. and another at 99.0 F. Both peaks are approximately the same height, indicating the possibility of two phases of temperature of roughly equal duration for each woman over a period of 29 days, i. e., a menstrual cycle. It is indeed statistically possible that each woman shows homogeneous temperature readings during the cycle and, therefore, that there are two distinct groups of women. Inspection of the individual distributions of readings for women, however, showed evidence of two peaks in a large number. Since the bimodal nature of the distribution made the fitting of theoretical curves a useless procedure, no further analysis was undertaken.

Figures 3 and 4 show the distribution of the first 29 D's for men and for women, respectively. Both are unimodal, with a peak for each at 1.0 F., and both are skewed to the left. Normal curves were fitted to each. For the male morning D observations, the probability of chi-square was between 0.01 and 0.001, and for the female morning D's it was less than 0.001. In both cases, the hypothesis of normality would conventionally be rejected.

Assuming a single universe of D's for all men, the standard error of the mean was computed to be 0.078 F. Five of the 14 subjects were more than 3 standard errors away from the grand mean (almost 36 per cent instead of the theoretical 0.3 per cent). In fact, 9 of the 14 were more than 2 standard errors away from the grand mean (64 per cent instead of the theoretical 4.5 per cent). The L_1 test for homoscedasticity gave an L_1 value of 0.700, with a probability of less than 0.01. Two extreme items were eliminated, but the probability remained below 0.01. It may be concluded that there is no single morning D(i) applicable to all men, nor is there any single "normal range" of individual morning D's applicable to all men.

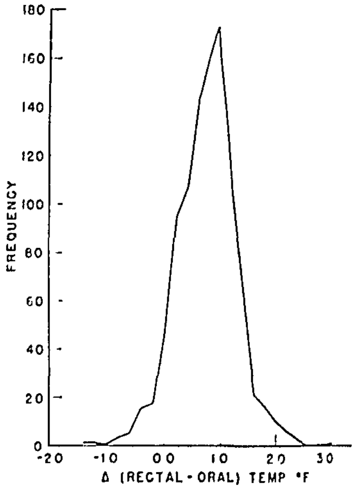


Fig 4.—Distribution of the differences between rectal and oral temperatures of female subjects.

The non-normality of these distributions of D is of great import If there really were a single constant difference between rectal and oral temperatures for all subjects, the distribution of D would, theoretically, be normally distributed. Since the hypothesis of normality had to be rejected it was likely that there was no single constant D for all levels of temperature but that D was correlated in some way with the level of rectal temperature. There was, of course, the possibility that D was a constant value for each subject, but *further analysis casts doubt on this hypothesis.* As a rough test of independence between level of temperature and D, the range in T of each subject was correlated with the range in D. If D were really independent of the level of rectal temperature, there should have been no significant correlation between these two ranges, i. e., the variability in D should be independent of the variability in T.

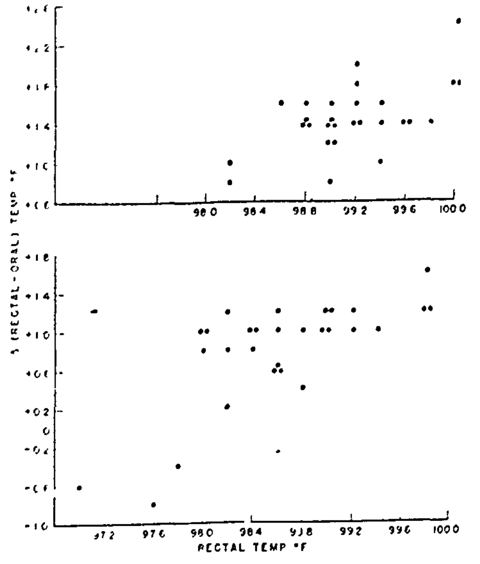


Fig 5.—Scatter diagrams illustrating the relations between rectal temperatures and the differences between rectal and oral temperatures. The data for the upper graph were obtained from a male subject and the lower from a female

There were 14 pairs of ranges for men. When plotted in a scatter diagram, there appeared to be a direct, linear relation-

---

15. In fitting a theoretical normal curve to an actual distribution, the mean, standard deviation and total frequency of the actual distribution were equated with those of a theoretical normal curve and theoretical frequencies were found by the method of areas. The goodness of fit of the theoretical to the actual distribution was tested by computing chi-square and finding the probability of chi-square. The probability of chi-square is the probability of getting a fit as bad as or worse than the one observed if chance were the only factor operating and if the actual distribution were really a random sample from a normal universe. Conventionally, the hypothesis of normality is accepted if this probability is greater than 0.05

16. The L_1 test is based on the relationship between the geometric mean and the arithmetic mean of a series of sample variances. The closer the ratio is to 1, the closer the individual variances are to each other. It is conventional to reject the hypothesis of homoscedasticity (i. e, identical population variances) if the probability obtained from the L_1 table is less than 0.05

ship between the two. Analysis, however, showed no significant correlation. This was due to the presence of a single extreme item. When the one item was eliminated, the correlation was significant at close to the 0.001 level of significance. (The coefficient of linear correlation was +0.76, with a standard error of 0.19; "t" equalled 4.0, with 11 degrees of freedom). For the 34 pairs of ranges for women, the correlation was significant at the 0.001 level of significance. (The coefficient of linear correlation was +0.64, with a standard error of 0.14; "t" equalled 4.6, with 32 degrees of freedom). It would be reasonable to conclude that there was real correlation between D and level of rectal temperature.

Examination of the scatter diagrams of rectal temperatures and corresponding D's by subjects showed a common pattern similar to the ones in figure 5. There appears to be a central range of temperatures within which D remains fairly constant. This constant value was not the same for all subjects, nor was the range of constancy the same for all; at lower temperatures, D decreases and may even become negative (i. e., oral temperature higher than rectal); at higher temperatures, D shows evidence of increasing (fig. 6).

COMMENT

What is normal body temperature? This is by no means an academic question. Physicians are too frequently confronted by a patient complaining of being feverish and yet having a temperature not above "accepted normal" standards. Or on occasion, a patient has vague indeterminate symptoms with nothing more positive than a "low grade fever." What is the relationship between the condition in such a patient and his "normal" body temperature?

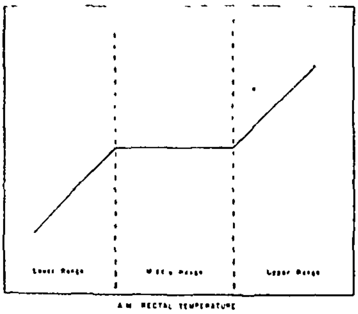


Fig. 6.—A schematic diagram showing the possible relations between absolute levels of rectal temperature and the rectal temperature and the rectal-oral temperature difference.

It is obvious that a part of the difficulty associated with measurements of body temperature lies in a failure to appreciate that "normal" values for body temperature are merely vague statements of someone's average and that a range of values is more significant. Worship of the thermometer with its arrow pointing to a fixed value is definitely harmful. The thermometer can be of greater value if there is an understanding of normal temperature variability and an appreciation of the fact that the shift of body temperature away from or back toward the normal range for the individual patient, rather than a single absolute value, is significant.

The grand mean of rectal temperatures and difference between rectal and oral temperatures and the sigma of the distribution of combined readings reported herein are certainly useful for "gross" evaluation of abnormal temperature. Small deviations from the grand mean, i. e., less than 3 sigma, would give little indication that the subject had an abnormal temperature unless his mean and sigma were known. The importance of individual variation must be recognized and appreciated in order to give meaning to any observation of body temperature.

Almost everyone considers the oral temperature to be a measure of the body temperature of adults. However, despite the ready availability of the oral cavity, the measurement of oral temperature is susceptible, in ordinary practice, to many errors. DuBois[17] has indicated the serious problems associated with this determination. If these variables are controlled and satisfactory oral values are obtained, can they be employed to predict rectal temperatures? Renbourn and Bonsall[6] have reported a positive and significant correlation between rectal and oral temperatures. This has not been confirmed by other investigators,[18] whose results indicated a low degree of predictability of oral from rectal measurements and vice versa. However, the results presented and the scatter diagrams in figure 5 and the schematic diagram in figure 6 suggest that there is correlation between them. The difference between these two measurements is not, however, a fixed quantity, i. e., the regression equation would not be of the form rectal temperature equals oral temperature plus a constant (R=O+C) but would be much more complex.

The present data require considerable extension to confirm the possible correlations that have been suggested (fig. 6). Some information has been presented by Shelley and Horvath[19] at the upper levels of rectal temperature, which agree with the suggestion that the differences between oral and rectal values would be greater at those points. The mean difference observed by these investigators was 1.2 F., in contrast with an approximate mean difference of 0.8 F. observed in this study. However, such generalizations must be viewed with caution, since in the same subject and among subjects variations are large and would prohibit any such simplification of fact.

SUMMARY

The mean morning rectal temperature of women was not only higher but variability in the mean values was greater than for men over a comparable period of 29 consecutive days. Both men and women had a significantly higher mean evening rectal than mean morning rectal temperature. There is no single "normal" temperature value for all men. Neither is there a single "normal range" of temperature for all men. These statements are equally true with respect to the differences between rectal and oral temperatures. In any specific person there was no single constant rectal-oral difference over his range of body temperature. A correlation of this difference with the absolute level of rectal temperature was noted, but the precise nature of this relation was not fully analyzed.

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

HOWARD A. CARTER, *Secretary.*

MEDCOTRONIC STIMULATOR, MODEL 50, ACCEPTED

Manufacturer: Medco Products Company, 3603 East Admiral Place, Tulsa 12, Okla.

The Medcotronic Stimulator, Model 50, is a generator of electric currents for the stimulation of human muscles. The three types of current produced are described by the firm as: 1. Pulse: Provides a twitch contraction of normally innervated muscle. The "pulses" of current can be varied from approximately 1 to 7 per second at a setting of 1,000 cycles, or from 2 to 14 per second at a setting of 2,000 cycles. 2. Surge: Provides a graduated muscle contraction. During the "on" period the current gradually builds up to full strength in 2 to 3 seconds. There is a 6 second "off" or rest period. 3. Tetanizing: Provides a constant tetanic contraction of muscle. The currents are the same as "surge" currents, approximately 1,000 or 2,000 cycles per second superimposed on a ½ rectified 60 cycle sine wave, but in this case they are not interrupted. The above descriptive terms are not those in general use, but the Council recognizes that the nomenclature in electrotherapy is not uniform. The Council on Physical Medicine and Rehabilitation voted to include the Medcotronic Stimulator, Model 50, in its list of accepted devices.

"Medcotronic Stimulator, Model 50"

---

[17] DuBois, E. F.: Fever and the Regulation of Body Temperature, Springfield, Illinois, Charles C Thomas, Publisher, 1948.

[18] Carmichael and Linder.[7] Whiting.[5] Rappaport, E. M.: Essential Oral Hyperthermia: Report of a Study of 25 Cases of Low Grade Fever, Ann. Int. Med. 25: 1, 1946.

[19] Shelley, W. B., and Horvath, S. M.: The Oral and Rectal Temperatures in Hot Environments, Bull. U. S. Army M. Dept. 5: 459, 1946.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. - - - CHICAGO 10, ILL.

Edited by
AUSTIN SMITH, M.D.

Associate Editor
JOHNSON F. HAMMOND, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Subscription price - - Twelve dollars per annum in advance

Cable Address - - - - "Medic, Chicago"

SATURDAY, DECEMBER 30, 1950

ACTION OF LIPOTROPIC SUBSTANCES IN LIVER DISEASE AS MEASURED BY RADIOACTIVE PHOSPHORUS

The liver is an organ of many functions. Tests have been designed to measure alterations in function in hepatic disease, but these tests are often relatively crude and do not detect small decreases in activity. No test has been devised which can assay the functional capacity of the liver for some activities which are known to exist. Until recently, for example, no means had been developed to measure new phospholipids entering the blood, though it has been known for some time that the blood phospholipids are derived almost entirely from those formed in the liver.[1] The synthesis of phospholipids is a function of primary importance to the body and cannot be measured by a chemical method. The application of an isotopic technic to this problem makes possible the accurate measurement of the excess, over their normal breakdown and catabolism, of newly synthesized substances which incorporate the labeled atoms of phosphorus (P^{32}) into the molecule.[2]

Stress of various types is known to damage the liver. The harmful action of poisons, such as carbon tetrachloride and heavy metals, has long been known. More recently, infections in distant parts of the body—as well as parasitization of liver cells themselves—has been recognized to decrease liver function.[3] The association of alcoholism with liver damage has been discussed for many years. Apparently the damage is not the result of alcoholic intoxication per se, since not all persons with a high intake of alcohol exhibit liver damage. It is likely that a deficiency of some substances, induced by the restriction of diet which often accompanies alcoholism, is at fault. The question is, What substances and what degree of deficiency? Liver cells damaged in this fashion tend to accumulate neutral fat and fatty acids which can be detected by histologic staining technics that permit visualization of lipids. The presence of fat appears to hinder the regeneration of liver cells—a process which usually follows injury rapidly and often proceeds to an amazing extent.

Attempts have been made to decrease the lipids deposited in the liver by restricting the intake of fat and by forcing the ingestion of a high carbohydrate diet, supplemented with infusions of dextrose. These efforts resulted in some clinical improvement. A high protein diet has proved to be much more effective in the treatment of cirrhosis. Vitamins of the B complex are associated with proteins, chiefly nitrogen-containing compounds—such as the base choline—and amino acids. The sulfur-containing amino acid, methionine, apparently is necessary for the regeneration of cells; it also furnishes methyl groups and may serve as a precursor for choline. Choline, which acts as a lipotropic substance, apparently is necessary for the mobilization of neutral fat through the formation of choline-containing phospholipids[4]; non-choline-containing phospholipids are also formed simultaneously but do not mobilize fat. The introduction of competitors for methyl groups (methyl acceptors) may decrease phospholipid synthesis in the liver and thus enhance the production of fatty liver. The action of choline or of methionine in effectively mobilizing lipids can be demonstrated by serial liver aspiration biopsies. Studies of the liver by this anatomic technic demonstrate that the addition of lipotropic substances in the treatment of liver disease does not effect improvement in all instances. This failure raises the question of whether a deficiency of lipotropic substances may exist in human beings and whether correction of the deficiency can be correlated with an increase in phospholipid formation, as well as disappearance of fat from liver cells.

The application of the new isotopic technic has demonstrated that choline deficiency does occur in man.[5] Biologic technics which utilize the rate of growth of bacteria as an indicator measure the excretion of choline in the urine after the body is saturated with the substance, but they do not measure the utilization of the lipotropic material.

The normal range of phospholipid synthesis has now been determined in man.[6] Considerable individual variation has been observed, but in a given person the rate of synthesis or turnover remains rather constant over a period of months. The synthesis of new phospholipids cannot be increased in the normal person by the administration of choline or methionine.

---

[1] Fishler, M. C.; Entenman, C.; Montgomery, M. L., and Chaikoff, I. L.: *The Formation of Phospholipid by the Hepatectomized Dog as Measured with Radioactive Phosphorus: Site of Formation of Plasma Phospholipids,* J. Biol. Chem. **150:** 47-55 (Sept.) 1943.

[2] Artom, C.; Sarzana, G.; Perrier, C.; Santangelo, M., and Segrè, E.: Rate of 'Organification' of Phosphorus in Animal Tissues, Nature, London **139:** 836-837 (May 15) 1937.

[3] Wolff, W. A., and Harrell, G. T.: Liver and Kidney Function in Rocky Mountain Spotted Fever, Am. J. M. Sc. **218:** 500-509 (Nov.) 1949.

[4] Best, C. H., and Ridout, J. H.: Choline as a Dietary Factor, Ann. Rev. Biochem. **8:** 349-370, 1939.

[5] Cayer, D., and Cornatzer, W. E.: *The Effects of Choline and Methionine on Phospholipide Formation in Patients with Liver Disease as Measured by Radioactive Phosphorus,* Science **109:** 613-615 (June 17) 1949.

[6] Cornatzer, W. E., and Cayer, D.: The Effects of Lipotropic Factors on Phospholipide Turnover in the Plasma of Normal Persons as Indicated by Radioactive Phosphorus, J. Clin. Investigation **29:** 534-541 (May) 1950.

In patients with chronic hepatitis (Laennec's or atrophic cirrhosis) lipotropic deficiencies can often be demonstrated at the start of therapy.[7] In an acute exacerbation the administration of a large dose of choline or methionine will cause an increase in synthesis of phospholipids. Once the deficiency has been overcome, the rate of phospholipid turnover remains rather constant for that individual, as long as the diet remains adequate and physiologic stress (alcohol intake and activity) is unchanged. In the interpretation of results in a disease which has so many variables, each subject must serve as his own control. Experiments by these technics over a period of months in patients with cirrhosis have shown that in this group phospholipid synthesis is in the low normal range. Occasionally, an old, small, scarred liver of chronic cirrhosis will show improvement in other functions—such as pigment metabolism or protein synthesis—without a change in rate of phospholipid synthesis or detectable anatomic change. Phospholipid synthesis must be a primitive function and one of the last to disappear in liver decompensation.

In patients with acute virus hepatitis no lipotropic deficiency has been demonstrated and no alteration in the rate of phospholipid synthesis has been detected by the addition of methionine or choline to a treatment regimen.[8] No good evidence exists that a reduction in protein intake is an etiologic factor in the disease or that stores of protein and lipotropic substances are rapidly depleted by the infection and the temporarily reduced food intake resulting from nausea and anorexia. The liver in virus hepatitis is usually enlarged, and the anatomic changes can be readily followed by serial aspiration biopsies. Jaundice, in the presence of normal phospholipid turnover, indicates that all functions of the liver are not damaged simultaneously in equal degree. Anatomic as well as physiologic technics are necessary to assay the type and extent of liver damage.

These important new studies may be immediately applicable to improvement in treatment of human disease. A deficiency in lipotropic substances apparently sets the stage for accumulation of fat in the liver. But how long an interval of time on a protein deficient diet is required in the absence of stress to produce a lipotropic deficiency? In rats the time is as short as five days, but no data are yet available for man. The rapid decrease in function and increasing seriousness of the clinical condition of those with cirrhosis who go on week-end drinking sprees suggests that the time may be shorter than now suspected. Since stress (anesthesia, trauma, infection) will induce a decrease in liver function in normal persons, one wonders whether it will prove possible to prevent liver damage by prophylactic administration of lipotropic and other substances when stress can be anticipated.

It may be possible to improve further the current regimen of treatment of chronic hepatitis by reducing the work now required of the liver. Energy is required to metabolize amino acids and to form urea from the nitrogen of the molecules. Experiments by the same group of investigators have indicated that in animals, at least, the stress of radiation from isotopic phosphorus can be reduced in toxicity and the survival time increased by reduction of the protein content of the diet.[9] This observation suggests the interesting possibility that a decrease in the current high protein intake of 140 to 150 Gm. per day might be feasible without a loss in efficacy of the treatment regimen, if lipotropic substances are furnished to the body. A high intake of vitamins, especially of the B complex and the unidentified trace substances which are present in crude liver, will probably have to be provided, but critically ill patients now being lost may be saved.

ALVEOLAR CELL TUMOR OF THE LUNG

Accumulated evidence within recent years has established that carcinoma of the lung arises in a bronchus; it is therefore referred to as bronchogenic carcinoma. A new entity, alveolar cell tumor of the lung, has recently attracted considerable interest because of its apparent origin from cells lining pulmonary alveoli, its multicentric origin and its striking morphologic similarity to "jagziekte" of sheep. The word "jag" is derived from the Dutch "jagt," which means drive, and "ziekte," which means sickness; the combination of the two is meant to indicate that the initial symptoms become first noticeable when the animals are driven for some distance. In the United States the disease is known as "Montana chronic progressive pneumonia." This pulmonary adenomatosis has also been observed in horses and in guinea pigs. Alveolar cell tumors in human beings were variously described as "primary multiple carcinoma," "multiple nodular carcinoma," "alveolar cell carcinoma" and, more recently, "alveolar cell tumor." This neoplasm does not resemble any other pulmonary growth. The tumor presents itself in two forms, as a multiple nodular, or miliary, type and a diffuse, or pneumonic, type.

Malassez in 1876 gave the first description of a multiple nodular alveolar cell tumor. The literature now contains 52 cases, in 49 of which the disease was diagnosed post mortem, while in only 3 was the diagnosis made from a histologic study of the surgically removed specimen.

---

[7] Cornatzer, W. E., and Cayer, D.: The Effects of Lipotropic Factors on Phospholipide Turnover in the Plasma of Patients with Cirrhosis of the Liver, as Indicated by Radioactive Phosphorus, J. Clin. Investigation **29**: 542-551 (May) 1950.

[8] Cornatzer, W. E., and Cayer, D.: Phospholipid Synthesis in Patients with Cirrhosis and Infectious Hepatitis: The Effects of Choline and Methionine as Measured by Radioactive Phosphorus, South. M. J. 43:212-217 (March) 1950.

[9] Cornatzer, W. E.; Harrell, G. T., Jr.; Cayer, D., and Artom, C.: Subacute Toxicity of Radioactive Phosphorus as Related to the Composition of the Diet, Proc. Soc. Exper. Biol. & Med. **73**: 492-495 (March) 1950.

Wood and Pierson [1] reported the first case in which the disease was diagnosed ante mortem. The removed lower lobe of the right lung in their patient grossly resembled noncaseating disseminated miliary tuberculosis. Microscopically the most prominent feature was the multicentricity of hyperplastic columnar epithelial cells lining the alveolar walls, showing all degrees of proliferation from simple lining to papillary and cystadenomatous arrangements. There was striking preservation of alveolar stroma devoid of epithelial invasion. Only hyperplastic alveolar changes were found, none being present in the bronchi. Drymalski and his co-workers [2] reported three cases, one of which is the second recorded surgical specimen of this condition. Delarue and Graham [3] reported the third patient treated surgically. These authors were likewise impressed with the multicentric nature of the lesion and felt that the term "alveolar cell carcinoma" properly described the condition. Ikeda [4] reported three cases with postmortem diagnosis. Laipply and Fisher [5] described two cases of pulmonary alveolar cell tumor of the lung. One of these was a case of a diffuse alveolar cell adenomatosis with two foci of cancerous change; the second was an instance of a bilateral multiple nodular alveolar cell carcinoma. In both instances the clinical signs and symptoms were those of chronic pulmonary disease with failure of the right side of the heart. These authors emphasize the striking similarity of morphologic features between alveolar cell tumors of man and similar lesions in sheep, mice, horses and guinea pigs.

Good and his co-workers [6] have observed eight patients with alveolar cell tumor of the lung at the Mayo Clinic since 1943. These patients were treated surgically. They found four additional cases in their files in which the diagnosis was made at necropsy. The most valuable single aid in the diagnosis of the tumor, the authors found, was the cytologic examination of sputum or of bronchial secretions. Operation, in their opinion, is the only effective treatment. It is indicated whenever the lesion is localized in one lung or one lobe of the lung.

The problems with respect to genesis of the tumor pertain to (1) existence or persistence of epithelial cells in the lining of alveolar spaces, (2) similarity to "jagziekte" or pulmonary adenomatosis in animals and (3) etiology. The presence of lining cells in the pulmonary alveoli has been the subject of many controversies. Human embryologic studies suggest that the epithelial lining of the terminal vesicles begins to disappear about the end of the fifth month of fetal life. The epithelium of the respiratory tract in the adult appears to terminate more or less abruptly at the beginning of the alveolar ducts. Neubuerger and Geever [7] point out in their review that three views exist at present: 1. The alveoli in the adult have a continuous epithelial lining. 2. The alveoli have a discontinuous epithelial lining in the form of isolated cells or nests in the niches between the capillaries. 3. No true lining exists, but the capillaries are contained in a ground substance with occasional "septal cells," probably of mesenchymal origin. It is agreed, however, that under certain pathologic conditions the alveoli have a definite lining. Arkin and Wagner, Fried and Geschickter objected that there can be no carcinoma primarily in the alveoli since they have no epithelial lining. Neubuerger considered that the alveolar lining as seen under pathologic conditions develops from mesenchymal septal cells and that a continuous developmental relation exists between the occasional production of lining in inflammatory conditions, on the one hand, and the alveolar cell tumor, on the other. He refers to a study by Jane Oppenheimer [8] concerning the specificity of the germ layers. On the basis of important contributions in this field she has concluded that the doctrine of the absolute specificity of the germ layers as enunciated in the last century must be abandoned. The germ layers are probably capable under certain conditions of undergoing variations. Neubuerger concludes that the possibility of mesenchymal cells giving rise to tumor with epithelial-like cellular elements cannot at present be rejected.

ERYTHEMA NODOSUM

Erythema nodosum is in most cases so typical that diagnosis does not present any difficulties, but there are questionable borderline cases. The concept that it is associated with tuberculosis now seems prevalent. Holmdahl [1] concludes that the primary infections seem to be combined with erythema nodosum to about the same extent during the various periods of childhood.

---

[1] Wood, D. A., and Pierson, P. H.: Pulmonary Alveolar Adenomatosis in Man: Is This the Same Disease as Jaagsiekte in Sheep? Am. Rev. Tuberc. **51:** 205-224 (March) 1945.

[2] Drymalski, G. W.; Thompson, J. R., and Sweany, H. C.: Pulmonary Adenomatosis: A Report of Three Cases, Am. J. Path. **24:** 1083-1094 (Sept.) 1948.

[3] Delarue, N. C., and Graham, E. A.: Alveolar Cell Carcinoma of the Lung (Pulmonary Adenomatosis, Jagziekte?): A Multicentric Tumor of Epithelial Origin, J. Thoracic Surg. **18:** 237-251 (April) 1949.

[4] Ikeda, K.: Alveolar Cell Carcinoma of the Lung, Am. J. Clin. Path. **15:** 50-63 (Feb.) 1945.

[5] Laipply, T. C., and Fisher, C. I.: Primary Alveolar Cell Tumors of the Lung, Arch. Path. **48:** 107-118 (Aug.) 1949.

[6] Good, C. A.; McDonald, J. R.; Clagett, O. T., and Griffith, E. R.: Alveolar Cell Tumors of the Lung, Am. J. Roentgenol. **64:** 1-19 (July) 1950.

[7] Neubuerger, K. T., and Geever, E. F.: Alveolar Cell Tumor of the Human Lung, Arch. Path. **33:** 551-569 (April) 1942.

[8] Oppenheimer, J. M.: The Non-Specificity of the Germ-Layers, Quart. Rev. Biol. **15:** 1-27 (March) 1940.

[1] Holmdahl, K.: Course and Prognosis in Primary Tuberculosis with Erythema Nodosum in Children, Acta tuberc. scandinav. (supp. 22) pp 1-179, 1950.

with the exception of the first years of life. On comparison of "invertors" with cases of primary tuberculosis accompanied by erythema nodosum, the risk of pleurisy and postprimary pulmonary tuberculosis seems to be greater among the erythema nodosum cases. If cases of hilar adenitis with and without erythema nodosum are compared, it is not possible to demonstrate a significant difference. It seems that primary tuberculosis gives similar symptoms in children and in adults but with advancing age gives increasingly less pronounced primary changes. Healing is more rapid in older children, while the risk of the development of meningitis seems to be higher in cases with extensive hilar adenitis changes. Invertors with primary changes run a greater risk of contracting pleurisy and pulmonary tuberculosis than invertors without primary changes. There is considerable risk of the development of postprimary tuberculosis in adults as well as children, but the risk of meningitis seems to decrease with advancing age. The opposite seems to apply to postprimary pulmonary tuberculosis. It is clearly apparent that the risk of development of pulmonary tuberculosis is greater for invertors in adulthood than in earlier life. This is also the case in primary tuberculosis associated with erythema nodosum. Exudative pleurisy, except for first years of life, is a common complication in childhood as well as in adult life. The risk of incurring pleurisy following primary infection is somewhat greater in adults than it is in children. Holmdahl followed 657 patients with primary tuberculosis with erythema nodosum from birth to 16 years and found that 52.2 per cent acquired their primary infection between birth and 7 years of age. Phlyctenulosis occurred in 6.5 per cent of cases of erythema nodosum. The mortality from postprimary tuberculosis was greatest among those cases of primary tuberculosis which were the result of intrafamilial infection. In 537, unquestionable primary tuberculosis was present. Hilar changes were established in 94.7 per cent and parenchymal pulmonary changes in 59.8 per cent. Thirty-two patients (4.9 per cent) died of tuberculosis, and in 147 (22.4 per cent) one or several forms of postprimary tuberculosis developed. There were 17 cases of tuberculous meningitis, 1 case of miliary tuberculosis without meningitis, 83 cases of exudative pleurisy, 50 cases with certain and 17 cases with doubtful postprimary pulmonary tuberculosis. All of the patients in whom tuberculin tests were completed were still tuberculin positive after a mean period of 14.5 years. There were 14 deaths from causes other than tuberculosis, and tuberculosis was not contributory to these deaths. The observed prognosis was less favorable in those cases of primary tuberculosis with erythema nodosum in which primary tuberculous changes were demonstrable and in which the course of the primary changes or the rise in sedimentation rate was protracted.

Stimulated to an interest in erythema nodosum by Arvid Wallgren, Rollof[2] points out that the various theories of etiology of erythema nodosum are not in agreement. Some consider it a disease caused by a specific virus, while others consider it an accidental phenomenon of allergic nature in different diseases. The occurrence of erythema nodosum in association with various drugs may prove helpful, and Rollof notes the significance of sulfathiazole in children mainly with reference to primary tuberculosis. Accordingly 706 patients were studied: 231 were tuberculous and 475 were nontuberculous. Of the latter, 98 were BCG vaccinated and tuberculin positive and the remainder were tuberculin negative. All the nontuberculous patients had had some other infection for which they had been treated with sulfathiazole. Erythema nodosum following sulfathiazole therapy occurred in 129 cases, of which 105 (81.4 per cent) were tuberculous and 24 (18.6 per cent) nontuberculous. Among tuberculous cases, sulfathiazole erythema nodosum occurred in 45.5 per cent; among nontuberculous it occurred in 5.1 per cent. The difference is considered statistically significant. The incidence of erythema nodosum in cases of primary tuberculosis was higher when sulfathiazole was administered, either therapeutically or experimentally. The frequency of erythema nodosum following sulfathiazole therapy is inversely proportional to the duration of the tuberculous process. The more recent the process, the higher the frequency. It could not be concluded with certainty that there was a relation between the development of erythema nodosum following sulfathiazole therapy and either the activity of the tuberculous process or the presence of "multiple infection," such as beta-hemolytic streptococci in the throat. There was no evidence that erythema nodosum resulted from hypersensitivity to sulfathiazole. Erythema nodosum can develop in association with treatment with other sulfonamides, but frequency is low compared with that associated with sulfathiazole therapy. No difference was observed between the lesions of spontaneous erythema nodosum and those of erythema nodosum following sulfathiazole therapy, although in the latter the lesions clear up rapidly when the drug is discontinued without passing the color phases of the spontaneous type. Perhaps spontaneous erythema nodosum and erythema nodosum following sulfathiazole therapy is a manifestation of an allergic phenomenon caused by some kind of infection, the sulfathiazole acting the part of a provocative fact, but no evidence is presented to explain its action.

---

[2] Rollof, S. I.: Erythema Nodosum in Association with Sulphathiazole in Children: A Clinical Investigation with Special Reference to Primary Tuberculosis, Acta tuberc. scandinav. (supp. 24) pp. 1-215, 1950.

THE PRESIDENT'S PAGE

A NEW YEAR'S MESSAGE

Although as this is being written I am hoping that all of you will have a joyful and blessed Christmas, the publication date of this issue permits me only to extend to you my sincere best wishes for a happy and very successful New Year.

It is going to be an eventful year . . . a year of momentous importance to the medical profession and to the world. Grave international problems must be faced and solved. Every American must devote himself with renewed vigor and earnestness to whatever his task may be.

It is incumbent on the medical profession as a whole, and doctors individually, to be especially alert, especially active. Our professional position is not, as we have long since learned, one of isolation. It is integrally and indivisibly a part of the structure of American public life. The medical profession now has the public confidence in higher degree than ever before, because it went to the people, told the truth and revealed state socialism for the universal danger it is. We can be proud of that, but we must live up to it.

The coming year will be one of new regulations, new restrictions; of growing economic problems and international crises. We will be living under government controls necessary to the defense of our liberties—and we probably will be living under those controls for some years to come. All the more important, then, that we think straight and talk straight, and that we have a sound understanding of world and national affairs

The progress of American medicine in 1951 will be great, indeed, if we continue the historic advances made during this past year. I think I know how the ancient god Janus felt, looking forward and backward at the same time, because I can see so much in the past that portends so much in the future.

One weak sector in medicine's front line, unfortunately, has been organized labor. Not the men and women themselves, but the officials who rule the unions. Union men and women have expressed themselves in no uncertain terms as being opposed to communism and the deadening hand of socialism. They defied their leaders in last November's election and supported those candidates whom their leaders were most viciously opposing. Among the rank and file are strong allies for medicine, and we must make it one of our 1951 resolutions that their friendship shall not be neglected.

But splendid as this grass roots support is, I find even more gratifying the courageous and challenging statement by William L. Hutcheson, General President, United Brotherhood of Carpenters and Joiners of America, that he and his powerful, highly respected union stand shoulder to shoulder with the doctors of America in opposing socialized medicine and all forms of state socialism. Mr. Hutcheson's action will be a landmark in our continuing campaign against the evils of governmental control of medical care, and it opens to all of us a whole new field of work on the local level. It is a cheering note, and a challenge, for 1951.

Another milestone was passed in 1950. When the Board of Trustees voted unanimously to appropriate $500,000 as the nucleus of a private fund to provide financial aid for medical schools, it at once threw a stinging rebuke at the critics of American medicine and set the keynote for the coming year.

The appropriation is solid, material proof that the medical profession is not just fighting against something, but is, and has been, doing positive things. The advancement of medical education is not a new activity of the American Medical Association, of course. Annually the Association spends a quarter of a million dollars for that purpose through its Council on Medical Education and Hospitals. But the new fund will provide a vehicle for private financing of our medical schools, and can end forever the arguments that federal funds are their only salvation. Here again is a cheering note and a challenge. We must extend to all of our communities the drive for contributions from private sources.

Yes, the past year has been a great awakening, a great reaffirmation of faith in fundamental American liberties. It is my prayer that we all may be given the strength and the courage and the wisdom to do our parts as good Americans and to keep ever alive that internal fire that is the last hope of all free men, the last beacon of liberty in a darkening world.

Elmer L. Henderson, M.D.
Louisville, Ky.

WASHINGTON NEWS

(From the Washington Office of the American Medical Association)

Local Health Units

The legislative situation regarding federal aid to local public health units has undergone significant change One bill passed the Senate in 1949 (S 522), and another (H R 5865) was tabled by the House Rules Committee early this month when the chairman of the National Security Resources Board failed to appear to testify for it The American Medical Association, while consistently approving the objective, opposed this legislation on the ground that it gave the federal administrator too much authority and that the definition of "public health services" was not sufficiently restrictive Now, however, a new bill has been introduced which emphasizes the civil defense aspects of local public health units and to some extent corrects features to which the Association objected

The revised legislation was introduced by Representative Percy Priest (Democrat, Tennessee), a member of the medically important House Interstate and Foreign Commerce Committee and chairman of its Health Subcommittee Mr Priest's bill (H R 9914) is designed to "provide basic full time public health services as rapidly as practicable in all areas of the nation and particularly in national defense areas, and in the training of all types of personnel for local public health unit work" Programs would be assisted by federal funds but subject to supervision by the state health authority or department of health The Surgeon General of the United States Public Health Service would set certain minimum standards of professional personnel and services, which state plans would have to meet before approval for participation Before issuing these regulations, the Surgeon General would be expected to consult with state health authorities, and he would be required to consult with them before making any later revisions The state would have to present evidence that it would extend coverage "as soon as practicable" to all national defense areas, as defined by the Surgeon General after consultation with other federal officials concerned with civil defense Furthermore, the local units would have to be sound financially, each would have to service an area with sufficient population and resources to assure continued financial support Other restrictions Funds allocated to states for public health units would have to be used for such units and for no other purpose, and other federal grants to states could not be turned over to health units and counted as a state contribution Appropriations for continuation of the program would not be authorized after the present national emergency is terminated

Under H R 9914, public health services are restricted to health education and information, laboratory services, vital statistics, communicable disease control environmental sanitation, maternal and child health and training of personnel for local public health work or other aspects of preventive medicine Public health units would be specifically forbidden to engage in medical or dental treatment except as necessary for communicable disease control or to meet epidemic or other emergency situations

Like earlier bills on the subject, H R 9914 provides for federal money to be distributed to local public health units through state health authorities applying a formula which would give poorer states proportionately more federal money However, federal contributions could not exceed $1 per capita in any local unit, regardless of the amount per capita contributed by state and local sources Under the formula, federal contributions would be less than 50 cents per capita only in states where the state's per capita income exceeded the average national per capita income

A week after Mr Priest introduced his new bill, the Federal Security Agency released a new pamphlet, "Your Best Buy," which "tells something of the services, staff and financing needed for a satisfactory local health program and explains how investment by a community in such a program helps buy health protection for its citizens" In popular language it explains how, for $1 50 per person from local and federal funds a community may maintain the basic public health services

Blood Collection by Red Cross

Between now and July 1, the Red Cross estimates that it will have to arrange for the full time or part time services of at least 50 physicians to supervise blood collecting centers and handle mobile units An indication of the scope of the Red Cross blood program came when the Defense Department announced that it was turning over $3,000,000 to the Red Cross immediately and that an additional $9,000,000 had been set aside for future financing of the program Money will be expended solely for the new plasma stockpiling program and for collection and handling of whole blood for overseas shipment to the armed forces Defense Secretary Marshall pointed out that all costs incident to collection and shipment of blood for the armed forces from the beginning of hostilities in Korea to Dec 1 1950, have been paid by the Red Cross but that now "the new and greatly expanded program requires additional funds beyond the planned budgetary estimates of the Red Cross' In addition to servicing the armed forces, the Red Cross blood program will have to supply large quantities of stable blood derivatives for civil defense stockpiling, pending the possible approval and production of substitutes It is understood that the Red Cross plans to set up 20 additional centers, similar to those in use in World War II An effort will be made to enlist the help of physicians in the local communities on a part time basis, for which they may be compensated If this is not successful, the Red Cross will ask the military services to assign physicians to it, following the procedure resorted to at some stages in the last war

Note to Doctors Returning to Military Service

At this writing the House has passed and the Senate is expected to pass a bill (H R 9911) providing $10,000 term National Service Life Insurance without cost to servicemen However, $10,000 is the limit—your beneficiary would not be eligible to receive any NSLI in excess of this amount, even though you may have kept in effect in another form all or part of the $10,000 optional NSLI available during your previous service Regulations undoubtedly will be prepared to simplify the procedure for holding in abeyance your present NSLI policy while you are in service and covered by the new $10 000 policy

Scientific Manpower Advisory Committee

The National Security Resources Board's Scientific Manpower Advisory Committee is ready to function, with appointment of 11 members The chairman is Charles A Thomas, executive vice president of Mansanto Chemical Co Members are Chester I Barnard, president of the Rockefeller Foundation and General Education Board, New York J Douglas Brown, dean of the faculty, Princeton University Vannevar Bush, president of Carnegie Institution, Washington, D C Ralph Connor, vice president of Rohm and Haas Company, Philadelphia Lee DuBridge, president of California Institute of Technology, Pasadena, Calif , Everette Lee De Golyer, oil geologist engineer and consultant, Dallas, Texas, Jacob Dever, Major General, U S Army (retired), Washington, Gordon Gray, president of University of North Carolina Chapel Hill, Ben Moreell, board chairman and president of Jones and Laughlin Steel Corporation, Pittsburgh, J C Warner, president of the Carnegie Institute of Technology, Pittsburgh, and Harry A Winne, vice president of General Electric Co, Schenectady N Y

The Committee will make recommendations to guide NSRB chairman W. Stuart Symington in formulating policy "regarding the maximum contribution to national defense from the nation's scientists, engineers and other technical personnel." In general it will not be concerned with the medical profession, where the authority is Dr. Howard Rusk's NSRB Advisory Committee. However, the understanding now is that the scientific manpower committee will have jurisdiction over certain classifications of scientists and technicians employed by or associated with medical schools and laboratories.

Field Tests of Equipment

The Army is making final on-the-spot field tests of improved medical equipment and drugs in Korea. Two Army physicians and a civilian consultant are in Korea checking the effectiveness of several new types of equipment with a view to general standardization for use throughout the Army. Lieut. Col. Edwin J. Pulaski and Major Curtis P. Artz of Brooke Army Medical Center, Fort Sam Houston, Texas, and Dr. Henry K. Beecher, consultant in anesthesia, Massachusetts General Hospital, Boston, will spend about six weeks in Korea testing the new devices and drug combinations.

Here are some of the projects they will evaluate:

1. Injection devices that may be discarded after use. One is a sterile needle attached by a rubber tube to a glass container partially filled with the drug. Part of the container is occupied by helium gas under pressure. Once the seal is broken and the drug injected, the glass can be thrown away. The other disposable needle is a syrette, the needle of which is attached to a tube of morphine or morphine substitute. A plastic top covering the needle is unscrewed and a shield inserted to break open the top of the tube, releasing the fluid.
2. A stainless steel bone pin replacing a cast in cases of a broken thigh bone. The pin is inserted in the end of the broken bone, through the marrow cavity, allowing the patient to become ambulatory sooner and permitting bone structure to form more rapidly.
3. Portable x-ray machines and accessories. Since World War II these have become lighter in weight and more flexible, making possible earlier determination of the extent of injury.
4. Portable, lightweight anesthesia machines for field service.
5. Two oversized wound or burn dressings for first aid use that can be left on the patient for as long as 14 days. (Present dressings must be changed every day or two.) Bandages are five times as large as any now in common use.
6. "Gunshot" injections of a combination of drugs. Penicillin and chloramphenicol have been used in combination before, but now streptomycin, aureomycin and terramycin have been added to the one-shot injections. It is known that singly these drugs combat different bacteria to varying degrees. By injection of the drugs in combination, the scope of attack on unknown bacteria is increased. The combination of drugs used depends on the location of the wound.
7. Pituitary adrenocorticotropic hormone (ACTH) used to retard growth of fibrous tissue, particularly in scarring wounds where growth may choke the nerve and interfere with its function. This decrease in scar formation could be of advantage in wounds to the eye, for example, where a small scar may produce blindness.

Chemicals in Foods

Because it wants to continue its investigation, the House Committee on Chemicals in Foods is not making specific recommendation for legislation in its interim report. The report says the committee wants an additional grant and more time to take testimony, particularly from scientists on the West Coast. Also, the plan is to take two full days of testimony from Department of Agriculture experts, who so far have not been heard. If the money is granted, the committee probably will reopen hearings in January. The committee is attempting to learn to what extent humans are affected by continuous absorption of residue from insecticides and pesticides and of chemicals used in the processing of foods. When it has completed its hearings, the committee probably will recommend more rigid federal controls over such substances.

At its last hearing in December, the committee received testimony from Dr. William J. Darby of Vanderbilt University School of Medicine, representing the Council on Foods and Nutrition of the A. M. A. Dr. Darby first discussed the role of the Council, explaining that members are appointed because of their knowledge of nutrition, foods and health, that they serve without pay and that no charge is made for the services of the Council and its staff.

Dr. Darby read to the committee the Council's definition of a wholesome food, and said, "The Council recognizes the important advantage of the proper use of such agricultural aids as pesticides and of certain of the intentional chemical additives. It holds, however, that proper information concerning the toxicological effects and the possibilities of residues in foodstuffs, methods of detection and assay, must be developed before a pesticide which is likely to find its way into foodstuffs is permitted to be marketed." At earlier hearings, Committee counsel had referred to a statement of caution about new chemicals, appearing a year ago in The Journal. Dr. Darby said, "Since the acceptance of this statement (by the Council) progress has been made and those manufacturers of pesticides who supported this work are to be congratulated." However, he warned, "If the findings of this Committee's hearings reveal that adequate controls and safeguards are nonexistent or are not supplied by existing methods of voluntary control, it is recommended that practical measures be evolved which will serve to safeguard the food supply." Dr. Darby did not endorse or propose any specific type of control.

Legislative Notes

Several amendments from the floor proposing appropriations for health services lost out when the House passed H. R. 9920, the supplemental appropriations bill. Eliminated: $75,000,000 to restore to $150,000,000 the 1950-1951 authorization for hospital construction grants, $2,600,000 which would finance the *two new institutes of Arthritis and* Metabolic Diseases and Neurological Diseases and Blindness; and a proposal to assist states in the event of major disasters, including the furnishing of emergency medical services by federal departments. . . . In approving the supplementary military appropriations bill (H. R. 9893), the House Armed Services Committee deleted $800,000 for an Air Force Medical Center but allowed Army Medical Service $8,663,200 for new construction and Navy $478,000 for medical facilities. At this writing, it appears certain the new Federal Civil Defense Administration will be approved by Congress; this legislation has far reaching medical aspects, including regional stockpiling of medical and surgical supplies by the United States and establishment of a network of health offices. . . . Introduced in the House: H. R. Res. 294, to establish a civilian fitness and training program. This would be voluntary and could be established under Veterans Administration, Public Health Service or other agency designated by the President. The bill was referred to the House Interstate and Foreign Commerce Committee, but no action is in sight

Notes

This fiscal year $499,000 will be distributed among the 42 medical schools participating in Institutes of Mental Health programs for undergraduate instruction in psychiatry . . . Public Health Reports vol. 65, no. 49, contains part one of the report of the annual American Public Health Association meeting. . . . The Atomic Energy Commission, University of Rochester Medical School and five Rochester (N. Y.) hospitals are cooperating in a new plan for distribution of radioisotopes for clinical and diagnostic use in that area. AEC explains that "materials will be standardized in the 'hot' laboratory maintained at the Medical School, and doses will be measured, transported to the hospitals, administered to patients and urine collected and counted in accordance with well established technics which will provide adequate safeguards both for patients under treatment and for hospitals and laboratory personnel." . . . FSA has listed state and local vacancies for mental health personnel. Openings for psychiatrists, psychologists, social workers and mental health nurses

ORGANIZATION SECTION

WHAT THE COMMUNITY EXPECTS OF THE DOCTOR

LOUIS B. SELTZER

Cleveland

It has been said that everyone in the world thinks that he could run a railroad or edit a newspaper better than the job is being done. Most people would admit, I think, that they have no idea of how one goes about removing a gallbladder or an appendix. Doctors are usually surrounded by frightened patients and dutiful nurses and I suspect that you are more accustomed to giving advice than to receiving it. I want, therefore, to inject a word of caution at the beginning of these remarks. All of you I am sure know the story of the two psychiatrists who were walking through the lobby of the medical building when a third doctor came by and exclaimed pleasantly, "Good morning." The one psychiatrist turned to the other with a worried look and said, "I wonder what he meant by that."

I trust therefore that you will accept my assurances that my words mean what they plainly say and nothing more. They conceal no hidden meanings. All of this sounds as though I were getting ready to scold you. Actually nothing is further from my purpose. I intend to spend most of my time this evening saying nice things about you, things which I mean from the bottom of my heart. But I shall also discuss some problems with you openly and frankly.

Cleveland, like a lot of other cities in this part of the United States, was buried under an avalanche of snow last week. A business acquaintance of mine called up the owner of a snow plow to find out if he could get the snow cleared out of his driveway. The answer was, "I'll get around to your house tomorrow or the next day, if I can. Today I'm cleaning driveways for doctors only."

In that incident you can find every aspect of the complex relation of the medical man to his community. It indicates that the community accords a special place to the medical man and simultaneously makes special demands on him. It indicates the realization that the community is in desperate need of its medical men. But it also shows that at a time when most members of the community are content to settle down in an easy chair before the fireplace they expect the medical men to plow through six-foot snowdrifts, if necessary, to answer the call of duty.

Your conference this week is devoted to the subject of effective county medical society public relations. I think back to the doctors who were in general practice in my boyhood. Since the medical profession is frequently a hereditary affair, those general practitioners of a generation ago probably included the fathers of many of the men in this room tonight.

I cannot help thinking how they would be puzzled by the subject of your discussion. The family doctor of a generation ago was more than a physician. He was a friend of the family and a tower of strength to it. He practiced psychiatry before that specialty had been invented. The whole family felt better when he walked in the front door. He delivered babies into the world, watched them grow up and get married and delivered their babies in turn. How he would have scratched his head in bewilderment at talk of public relations.

I mention this to call your attention to the fact that the family physician of a generation ago had the world's finest public relations without knowing it. And your goal today should be to seek the same kind of relation with the members of the community that he had. I think I am as well aware as you are of the difficulties involved. We no longer live in the horse-and buggy age. We live in the age of the automobile and the air plane. Life is more complex, cities are larger, and medicine is more complex.

I realize that the x-ray specialist, whose value lies in the fact that he can see things on an x-ray plate more clearly than anyone else, has no time for cultivating the family relations that made the general practitioner of a generation ago the beloved figure that he was. Many branches of modern medicine can be carried on only by specialists with the aid of the complex organization of the modern hospital. Diagnosis often requires complex chemical tests. They are growing more complex as radioactive isotopes become part of the picture. Thus it is that one more specialty, that of public relations, must be added to the other specialties in the field of medicine.

You doctors when called to treat a patient begin by examining him. You make a diagnosis in which you squarely face the facts as they are disclosed to your eye and your diagnostic tests. I think you must face the problem of public relations in the same spirit. You must begin with a diagnosis.

The other day I heard of a southern hospital where a patient was given an injection of penicillin on arrival. If he wasn't cured in 12 hours, they examined him. I don't believe the story. I don't believe that anyone would run a hospital that way. But all too often, public relations are handled that way and it is a mistake. As I have said, public relations must start with a diagnosis. You must start by looking for the answer to a question. And that question is contained in the subject assigned to me for discussion tonight, namely, "What the Community Expects of the Doctor."

The conduct of your public relations program will become a matter of simple operational technics, if you have the right answer to that question. Without benefit of an M.D. degree but on the basis of 35 years' experience in the newspaper business I shall try to make that diagnosis for you. You are privileged, of course, to disagree with me.

The first thing that the public expects is the best that modern medicine has to offer. I shall not take any of your time recounting the achievements of twentieth century medicine. You know that wonderful and magnificient story far better than I do. But side by side with this magnificent advance of medical science has come a new appreciation of health on the part of the public. Never in the history of the world have the people of a nation been so acutely aware of the importance of health.

No newspaper is complete without its syndicated column of medical information. The great metropolitan dailies and the press associations employ highly trained and competent science writers to report on the news of medical meetings and medical achievements. In the terminology of the advertising expert, the American public is health conscious as never before. Being aware of the best in medicine the public naturally wants it. I do not think that anyone will be inclined to regard this as unreasonable. After all, each one of us wants the best possible medical advice and care for ourselves and our families.

Moreover, from the national point of view, health is more than a personal matter. It is a national asset. Our national security depends in large part on it. Health has an economic value. We can express the cost of disease in terms of lost productivity on the farm and in the factory. If we wish, we can state it in terms of dollars and cents as well as in terms of human suffering and misery. Most of the problems of a public relations nature with which you must deal grow out of the fact that there are a considerable number of persons who feel that they are not getting the full benefits of modern medical progress or that the cost of those benefits is too high. This, I think, is your central problem.

I know that the great majority of American doctors, perhaps 99 per cent of them, are sincere, honest, capable practitioners of medicine, motivated by the highest ideals of the profession. And that is why I am going to make the next statement. The public has so high a regard, so sincere a veneration for the honest and competent physician that you cannot afford to protect the doctor who is not faithful to his vows and to the highest ideals of the profession.

I understand that county medical societies everywhere are setting up grievance committees to listen to those patients who think that they have been overcharged or have not received the consideration that they believed was due them. This is a step in the right direction, and it is extremely important that such grievance committees function forcibly and fearlessly.

All too often the medical profession is accused of protecting the incompetent and unscrupulous doctor on the basis of some notion of professional solidarity. It is not in your interest or the interest of the public to protect the doctor who charges exhorbitant fees, who neglects the best interests of his patients, who fails to keep abreast of the tide of medical progress,

---

Editor, *Cleveland Press*.

Read at the Annual Public Relations Conference of the American Medical Association, Dec. 3, 1950, Cleveland.

A few weeks ago I was asked to address the Cleveland Bar Association, and I reminded them that they had this same problem in their profession. As lawyers they are officers of the courts. They have a special duty to preserve the rights of the people and the machinery of democracy. They must be zealous in keeping their own house clean. The same thing applies to you. You, too, have special privileges and special obligations. You are the only ones that may prescribe a powerful drug or wield the surgeon's knife. Therefore you must guard the standards of your profession. You must come to grips with the problem of what to do with the small percentage that would turn the practice of medicine into a racket.

I think that the next thing that the public expects the medical profession to do is to recognize that the subject of medical care is not the exclusive domain of the medical profession. It is the primary concern of every citizen. All too often the medical profession leaves the impression that it regards the discussion of a medical problem by a nonmedical speaker or writer as an unwarranted interference with the practice of medicine.

Physicians have entered the field of politics. I am revealing no secret when I say that. I have noted the part the doctors of Florida played in the defeat of Senator Claude Pepper. I want you to know that I approve of doctors taking an interest in politics. I also approve of lawyers and business men and labor leaders taking part in politics. The survival of American democracy requires that everyone take an interest in politics. I also want you to know that I approve wholeheartedly of your opposition to socialized medicine. I want you to know that I shall not be in favor of socialized medicine until the day arrives that I am also in favor of socialized newspapers. I hardly anticipate the arrival of that day.

But you must realize that in entering politics you are laying yourselves open to the kinds of attacks that characterize politics and you must be prepared for it. Also, you must see to it that your entry in politics does not merely turn you into one more pressure group concentrating its attention on the achievement of its own selfish aims. The only excuse for your entry into politics is to protect both yourselves and the public from unwise legislation and political action and further to exert your influence on behalf of measures that are in the interest of the public.

The avoidance of the evils of socialized medicine is a basic necessity. But it is no solution to the many problems that cry out for solution. I shall not attempt to enumerate all of them. Besides, you know them better than I do. One of them is the problem of the financial plight of the nation's medical schools. I am told that the medical schools of the nation will end the year with a deficit of about $10,000,000. If true, this is far from a healthy situation.

There is also the problem of getting into medical schools. As an editor, I am besieged every year with the tales of students who applied for medical schools and were turned down. I know that the number of students in medical schools is larger today than it has been in many years. Nevertheless, I am constantly told of situations that can be interpreted only on the ground that the United States is suffering from a shortage of doctors. These are some of the problems facing the American public, and they are problems that the medical profession must help solve if it does not wish to be branded as one more pressure group in politics.

The public also expects that the medical profession will come down out of its ivory tower. There was a time when all scientists (and editors) dwelled in ivory towers. Most of the editors have come out, but the medical profession has only descended the stairway as far as the doorway. It is time to come out into the sunshine. Perhaps this indictment is too broad. The situation varies from place to place. In some places it is excellent. This is particularly true of the city in which you are now meeting. The attitude of the Cleveland Academy of Medicine and the Western Reserve University School of Medicine has long been a public-spirited one.

The academy, for example, has long had a committee on public information, which has been of the utmost aid to the newspapers in their endeavor to inform the public of medical news and medical progress. More than a decade ago, this committee arranged what in essence was a seminar in popular medicine for the benefit of reporters charged with reporting medical news. The relations between the academy, the Cleveland Hospital Association and the mediums of public information have been governed by a code of practices well known to many of you as the Cleveland code. This code, which has been widely copied in other parts of the United States, sets forth clearly the rules under which hospitals will give out medical news.

No doubt many of you would like to interrupt me at this point to make a speech on what the doctor expects of the newspaper reporter. I am going to make that speech for you by telling you what the newspapers in Cleveland have done. Each of the three Cleveland newspapers has assigned a full time reporter to the writing of medical news. These reporters are well known to the medical profession. They are governed by the same high regard for medical standards that govern the medical profession itself. They enjoy the confidence of the doctors of the town and the members of the medical school faculty.

I want to take this opportunity to salute these hard-working friends of the medical profession whom many of you know: Josephine Robertson of the *Plain Dealer*, Severino P. Severino of the *Cleveland News*, Don Dunham of the *Cleveland Press* and David Dietz of Scripps Howard.

My suggestion to those of you in communities where newspaper relations are not satisfactory is that the officers of your association sit down with the editors of your local newspapers and talk over the situation. It can be straightened out with mutual understanding. Perhaps I have scolded you too much already. If so, let me say in extenuation that the community expects so much of the doctor because it thinks so much of you. You occupy a very special place in the hearts of your patients. You occupy a very special place in the lives of the community. What criticisms I have voiced here are mild compared with the wonderful story of the achievement of American medicine. What I have said here tonight is said in the spirit of friendliness and sincerity, with the hope that it might be useful to you.

I should like to close on this note by ordering the press and medicine closer to each other. More and more American newspapers have realized the thirst for medical knowledge on the part of the people and the need for intelligent interpretation seasoned with good judgment on the part of the press, and more and more are putting coverage of this news into capable hands. Indeed, I think most of you would agree that the medical profession has had much less quarrel with American newspapers of the highest type the past five years than with some of our best-regarded national magazines. There still is one element of this medical reticence to appear in print that your group should dispel. Working with the serious and tragic phases of life around the clock, as doctor do, many of them are, as we say, unable to take it; they don't like to be kidded. Consequently they are afraid of what their chief or the doctor down the hall or at their luncheon club will say when their name appears in the paper. They assume that such kidding is reserved for doctors. It is not. Most lawyers, engineers, school teachers or retailers also get a bit of that when they make the public prints. It is part of our American way. And it is good for all of us. It is just a little antidote against our getting swelled heads because of the publicity.

There has been no instance in Cleveland in more than 20 years of an official case before the ethics committee of the Academy of Medicine concerning this kind of publicity. That probably would be a surprise to many doctors. Some think it unethical per se for their name to appear in print in connection with their profession.

It has been for many years an unfortunate failing of doctors. It is a bit ridiculous today. With our shortage of doctors and our aroused health consciousness, every doctor worth his salt has all the business he can handle and most of the good ones more patients than they should handle, especially with due regard to the health of the doctor.

We are confident that American industry is the most progressive industry in the world, that in our production lines and Yankee know-how is our great strength and our salvation. And so it is. But with all the progress of our industry, it is virtually standing still compared with medicine and its research, striding forward in sevenleague boots to make the lot of man happier, easier and more comfortable, to ease the pains, to soften the tragedies that are life and death.

The American people after all, in one way or another, pay for all this, no matter from what source the immediate sponsoring money comes. And the American people have a right to know what is going on, with only the rights of the patient protected, and the patient always must be protected.

So take the American people into your confidence, tell them and sell them your story. They are eager customers. I mentioned at the outset that you are here to exchange ideas. Sixty-five years ago, a great man lay on his deathbed in France. His last words were "There is nothing in the world as powerful as an idea whose hour has come." The hour of American medicine surely has come. The hour to tell its story is here. Doing that, the American people will stand with you in the inferno of any battle.

GOVERNMENT SERVICES

Veterans Administration

Facsimiles of Veterans Roentgenograms

Facsimiles of roentgenograms for use in the treatment of veterans are being produced by the Veterans Administration through a new mass production process. Now, when a VA clinic or hospital or doctor needs a previously made roentgenogram in the treatment of a veteran, the request will be sent to the VA Philadelphia Records Center, which will make a facsimile; the original will be retained in VA files. The facsimile need not be returned. All roentgenograms, many of which are now held in regional offices and other VA installations, may be consolidated into a single library at the Records Center. Solarization is the basic technic used. The solarization process requires a tremendous increase in exposure over what is ordinarily considered normal. The "overexposure" requires an extremely large volume of light. The color of the exposing light also has an important bearing on the quality of the reproduction. To overcome these obstacles, a printer was designed to meet the special needs of the laboratory. VA said the present production capacity is 80 to 100 facsimiles a day. It can increase this figure to 400 with additional personnel.

Appointment of Consultants

Dr. Brian B. Blades, professor of surgery, George Washington University, has been appointed to the VA's Special Medical Advisory Group, which met in Washington December 4. The following men have been appointed to the Board of Chief Consultants to VA's Chief Medical Director, Dr. Paul B. Magnuson: Dr. Osborne A. Brines, professor of pathology, Wayne University, Detroit; Dr. Herbert L. Mantz, Kansas City Health Department; Dr. Walter O. Klingman, associate professor of neurology, University of Virginia, and Dr. Donald A. Covalt, associate professor of rehabilitation, New York University Institute of Rehabilitation and Physical Medicine.

Personal

Dr. Don E. Nolan, chief of professional services, Veterans Administration Center, Dayton, Ohio, has been named manager of the 325 bed VA hospital under construction at Seattle, which is expected to receive its first patients next April. Dr. Nolan has been employed by VA since 1938. He is also assistant professor of internal medicine, University of Cincinnati Medical School, and a diplomate of the American Board of Internal Medicine.

Dr. Franz J. Kallmann, assistant clinical professor of psychiatry at the New York Psychiatric Institute, spoke at the Veterans Administration Hospital, Northport, Long Island, N. Y., November 6 on "Results of Twin Studies on the Significance of Genetic Factors in Personality Development."

Dr. William W. Fellows, chief, Surgical Service, Aspinwall, Pa., Veterans Administration Hospital, has been appointed as manager of the 1,005 bed hospital under construction at Albany, N. Y. Dr. Fellows, who has been in VA service since 1931, previously spent six years in private practice at Salisbury. He has been certified by the American Board of Surgery and has served as assistant professor of surgery in the University of Pittsburgh Medical School.

Dr. John A. Seaberg has been appointed manager of the Veterans Administration hospital in Minneapolis, culminating 26 years of experience at that hospital. He replaces Dr. Edwin J. Rose, who goes to the central office in Washington, D. C., as assistant director of the Hospital Operations Service.

Public Health Service

Influenza Information Center

The Influenza Information Center will be continued for a third year. The decision to continue the program on the same basis as last year was reached at a meeting of the Advisory Committee to the World Health Organization Influenza Study Program. All laboratories that engaged in the program last year have been invited to participate again, and several others are included for the first time. This year the center will be under the direction of Dr. Dorland J. Davis of the National Microbiological Institute of the National Institutes of Health. Dr. J. T. Culbertson, director of the center for the first two years, has left the Institutes for a position as associate medical director, Medical Division, E. R. Squibb & Sons.

The committee also agreed that it would be important to continue to have rapid information concerning the laboratory diagnosis of any epidemic disease. Accordingly the Regional Laboratories again have been requested to report laboratory findings on other infectious diseases in unusual incidence. The laboratories of the armed forces are collaborating in the program by making their laboratory observations available to the Influenza Information Center.

Following is a list of the special regional laboratories and their directors:

Boston City Hospital, Dr. Maxwell Finland, New England.

New York State Health Department, Albany, Dr. Irving Gordon, New York, New Jersey, Pennsylvania (Eastern), Delaware, Maryland, District of Columbia.

University of Pittsburgh, Dr. Jonas Salk, Pennsylvania (Western), Ohio, West Virginia.

University of Michigan, Ann Arbor, Dr. Thomas Francis, Jr., Michigan, Indiana, Illinois, Wisconsin.

State University of Iowa, Iowa City, Dr. A. P. McKee, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas, Wyoming, Colorado.

California State Dept. of Health, Berkeley, Dr. E. H. Lennette, Montana, Idaho, Utah, Nevada, Arizona, Washington, Oregon, California.

U. S. Public Health Service Communicable Disease Center Virus Laboratory, Montgomery, Ala., Dr. M. F. Schaeffer, Virginia, Kentucky, North Carolina, South Carolina, Tennessee, Georgia, Alabama, Mississippi, Florida, Louisiana, Arkansas, Oklahoma, Texas, New Mexico, and other state or local health departments which may wish to collaborate.

School of Tropical Medicine, San Juan, Puerto Rico, Dr. E. Perez, West Indies.

University of Toronto, Canada, Dr. C. E. Van Rooyen, Canada.

The listing of regional laboratories remains the same as that of last year (The Journal, March 18, 1950, page 825).

Symposium on Metabolic Disturbances

A symposium on "Metabolic Disturbances During Surgical Care" will be held Friday, January 12, in Bethesda, Md., at the National Institutes of Health of the United States Public Health Service. Leading investigators in the field of experimental surgery will attend. Visitors are invited to participate in the discussion. The symposium will meet in Wilson Hall in the Administration Building at the National Institutes of Health. It is sponsored by the surgery study section of the USPHS. Dr. Frederick A. Coller of the University of Michigan is chairman of the study section. Information about the symposium may be obtained from Dr. John M. Ellis, Executive Secretary, Surgery Study Section, National Institutes of Health, Bethesda 14, Md.

Reserve Officers Association

At the recent Sixth Annual Conference of the Association of Reserve Officers of the U. S. Public Health Service in St. Louis, the following officers were elected for the year 1951: president, Samuel M. Peck, M.D., New York City; vice president, Anna Heisler, Senior Nurses Officer (retired), Washington, D. C.; secretary, James Q. Gant Jr., M.D., Washington, D. C.; treasurer, Julius Fogel, M.D., Washington, D. C., and historian, Ezra B. A. Gratz, D.D.S., Washington, D. C.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Directory of Health and Welfare Agencies.—The Welfare Council of Metropolitan Los Angeles has published its 1950-1952 Directory of Health and Welfare Agencies in Los Angeles County. Containing brief descriptions of 674 nonprofit organizations that serve the health, welfare and recreational needs of the community, the new directory gives a comprehensive countywide coverage of both private and public resources. Included is a functional index that classifies agencies according to the services they render. Copies, which sell for $1.85 plus sales tax, may be secured from the council at 729 South Figueroa Street, Los Angeles 17.

New 70 Million Volt Synchrotron.—Dr. Gail D. Adams of the University of Illinois, Chicago, will join the staff of the University of California Medical School at the end of the year to become an associate physicist on a project involving biologic and medical research with the school's new 70,000,000 electron volt synchrotron. He will be associated with Dr. Robert S. Stone, professor of radiology and director of the project. This instrument eventually will be used for clinical therapy. The building for the synchrotron probably will be completed in February, at which time the machine will be installed. Dr. Adams has been associated since 1941 with Prof. Donald W. Kerst, Sc.D. At Illinois Dr. Adams has been interested since 1942 in radiobiologic research evaluating high energy radiation from the betatron in the treatment of deep-seated cancers.

Establish Blood Vessel Bank.—A blood vessel bank has been established in the department of thoracic surgery of the University of California Medical School, Berkeley-San Francisco, under the supervision of Dr. H. Brodie Stephens, associate clinical professor of surgery and director of the J. J. and Nettie Mack Clinic. The bank will collect and store fresh blood vessel grafts. Surgeons throughout the Bay Area will be able to draw on the bank to the extent that grafts are available. Dr. Stephens has already circularized hospitals requesting that their surgical staffs help in keeping the bank supplied with grafts. The financing of the new bank is made possible by funds derived from the $100,000 endowment presented to the University in 1928 by Mr. and Mrs. George Ross of San Francisco, for the establishment of the J. J. and Nettie Mack Clinic as a memorial to Mrs. Roos' parents.

COLORADO

University Appointments.—Dr. David H. Watkins, Rochester, Minn., has been appointed associate professor of surgery, University of Colorado School of Medicine, Denver, and associate chief of the division of surgery, Denver General Hospital, effective January 1. John R. Cann, Ph.D., has been named assistant professor of biophysics, effective January 1. At present Dr. Cann is a senior research fellow in the Gates and Crellin laboratory of chemistry at California Institute of Technology, Pasadena. He is a former instructor in physical chemistry at Cornell University, New York.

ILLINOIS

County Health Departments.—Three more counties have been added to those which have full time public health services. These are Gallatin, Saline and White counties, which voted on November 7 to establish and maintain a tri-county health department. Voters also approved continuing local health department services in Alexander, Pulaski and Shelby counties. The question of establishing a county health department was also submitted to the people of Lake County. The proposition was defeated. Since the enactment of the county health department law, 27 counties have approved the establishment of full time local health departments. These, together with the full time city and local district health departments, provide public health services for about two thirds of the people of Illinois. At the November 7 election, residents of 16 counties in the state voted favorably on a tax levy to provide funds for the care and treatment of their tuberculosis patients. These counties include Brown, Cass, Clinton, Crawford, Fayette, Ford, Fulton, Grundy, Jackson, Jefferson, Kendall, Lee, Montgomery, Morgan, Pope and Warren. The tuberculosis tax measure failed in Perry and Randolph counties.

Arthritis and Rheumatism Research Funds.—The Illinois Chapter of the Arthritis and Rheumatism Foundation, 69 West Washington Street, Chicago 2, has made the following allocations of funds: Illinois Research and Educational Hospitals, $2,000; Mercy Hospital-Loyola University Clinics, $2,000; La Rabida Jackson Park Sanitarium, $1,500, and the Rheumatic Fever Institute, $1,000. This is in addition to earmarked funds (not accepted in the current fund-raising campaign) of $13,500 already turned over to Wesley Memorial Hospital and $3,500 to Michael Reese Hospital. An additional $21,854.56 has been transmitted to national headquarters of the foundation as the Illinois chapter's share of the over-all research program, and $5,000 has been set aside for a special arthritis fellowship in Illinois. About $1,000 remains from the 1949-1950 funds for emergency allocation purposes.

Chicago

Heart Association Changes Address.—The Chicago Heart Association has moved its executive offices from 203 North Wabash Avenue to 69 West Washington Street, Room 601, Chicago 2. Telephone: Financial 6-4675.

Fenger Lecture.—The fifteenth Christian Fenger Lecture of the Institute of Medicine of Chicago will be held jointly with the Chicago Pathological Society on January 26 at 8:00 p. m. at the Palmer House. Dr. Anton J. Carlson, Frank P. Hixon distinguished service professor of physiology emeritus, University of Chicago, will speak on "Some Medicosocial Problems Created by Modern Medicine."

Committee to Select Head of Anatomy Department.—A committee of five has been appointed to select a new head for the department of anatomy in the University of Illinois College of Medicine. Dr. Eric Oldberg will serve as chairman of the committee with other members, Drs. S. Howard Armstrong Jr., Robert E. Johnson of Urbana, Milan V. Novak and Carl C. Pfeiffer. The present head of the department, Dr. Otto F. Kampmeier, has requested that he be relieved from administrative duties on Sept. 1, 1951, in order to devote time to the completion of several books.

Babies Deaths Caused by Bottle Cleaner.—A coroner's jury in November found that a chemical cleansing agent used to wash nursery bottles caused the death of a newborn baby at Grant Hospital in October when it was accidentally introduced into the milk formula. The toxic chemical in the detergent was boron. Three other babies died at the hospital October 12-14, and several others were stricken but recovered. According to a newspaper report, the jury held that the death, while accidental, resulted from inadequate supervision and precautions against such accidents. To prevent similar accidents the jury sent recommendations to Dr. Herman N. Bundesen, president of the board of health.

Dr. Lewin Heads Department at Northwestern.—Dr. Philip Lewin, professor of bone and joint surgery at Northwestern University Medical School, has been appointed chairman of the school's department of bone and joint surgery, succeeding Dr. Paul B. Magnuson, now professor emeritus. Dr. Lewin has been a member of the Northwestern Medical School faculty since 1918. He has served as orthopedic surgeon at Michael Reese, Cook County, Municipal Contagious Disease and St. Luke's hospitals, and as orthopedic surgery professor at the Cook County Graduate School of Medicine. He was awarded the certificate of merit by the American Roentgen Ray Society in 1939. Dr. Lewin served in the army medical corps in World Wars I and II. He is author of several textbooks.

Cancer Research at University of Chicago.—More than 115 cancer research projects are under way at the University of Chicago, Dr. Leon O. Jacobson, associate professor of medicine, told the annual meeting of the trustees of the University of Chicago Cancer Research Foundation. The projects range from the basic chemistry of normal growth to the specific surgical and chemical technics for attacking various forms of cancer. The research involves work in 11 different departments of the university, including the department of botany, the Institute of Radiobiology and Biophysics and the Walter G. Zoller Memorial Dental Clinic. The trustees re-elected the present officers of the Cancer Research Foundation: Maurice Goldblatt, president; Graham Aldis, vice president; Frank McNair, treasurer, and J. Parker Hall, assistant treasurer.

KENTUCKY

Healthmobiles for Rural Areas.—The two new healthmobiles placed in service in rural Kentucky are to operate for three months in Larue and Pulaski counties. Services rendered by the traveling health centers include examination of school children, immunizations and prenatal clinics. Among the personnel will be a county health officer and a nurse.

New Mental Hospital.—Our Lady of Peace Hospital was formally opened in Louisville December 8, at which time an inspection tour was made by federal and state officials and others connected with the establishment of the $2,246,000 institution. Patients will be admitted in the early part of February. In addition to the 150 beds, the hospital has facilities for outpatients. Funds received from both the state and federal governments and contributions from Louisville citizens aided in financing the hospital.

MICHIGAN

Personal.—Dr. Warren B. Cooksey, Detroit, was elected president of the United Health and Welfare Fund of Michigan at the recent annual meeting.——Dr. Thomas H. Cooper, Port Huron, senior local district surgeon of the Grand Trunk Railroad and a member of its staff for 30 years, has been awarded the Venerable Order of the Hospital of St. John of Jerusalem. Harold E. Askew, superintendent at Port Huron, presented the award representing the Viscount Alexander of Tunis, Governor General of Canada, "Prior of the Priory" of Canada. It was the sixth time that a parchment representing the Priory "Vote of Thanks" has been given to persons outside the British Empire.

Institute of Industrial Health.—General Motors has begun a $1,500,000 research project to promote better health for its 446,000 employes and those of all American industry. It has joined with the University of Michigan in establishing the Institute of Industrial Health, whose objectives will be research, education and service in industrial medicine, health and safety. General Motors maintains 106 medical departments in as many operating units and employs 125 physicians and 675 nurses, technicians and other medical personnel, a total staff of 800 to carry out the objectives of its over-all health maintenance program. The institute will provide fellowships, scholarships and hospital residencies in industrial medicine, health and safety. Of the $1,500,000 granted the university for the institute, $500,000 will be used as needed for equipment. In addition, an annual payment of $100,000 for 10 years will be made by the corporation for research and to meet the expenses of fellowships, scholarships, added faculty and other personnel, a clinic and publications, and refresher courses for doctors, nurses and personnel in auxiliary services. The institute will begin operations within the next few weeks. It will be under the supervision and control of the board of governors to be appointed by the university's board of regents.

MINNESOTA

Plans for Care of Chronically Ill.—Taxpayers and professional groups in St. Louis County have developed a plan for better institutional medical and nursing care of long term patients. Patients will be hospitalized in three new infirmaries, which are being built adjacent to general hospitals. The county pays for construction and furnishing and then leases the buildings to nonprofit associations for operation. The welfare board pays the per diem cost for indigent patients. An infirmary of 125 beds was recently completed in Virginia, adjacent to Virginia Municipal Hospital and was leased to the Range Infirmary Corporation, organized by a taxpayers league that raised an initial fund of $50,000. The first of two planned 150 bed institutions is nearing completion in Duluth adjacent to St. Luke's Hospital. The hospital association holds a lease for the building. Admission of welfare patients is determined by the county Department of Public Assistance.

More Nitrate Deaths of Babies.—Two babies in Minnesota died recently from poisoning due to nitrates in well water used in their formulas. From July to November 14 cases of this type of poisoning were reported to the state department of health. These cases apparently constitute a new outbreak (THE JOURNAL, June 3, 1950, page 476). During 1947, 1948 and 1949 a total of 146 cases were reported, and the health department warned parents of newborn infants to be especially careful about the water used in feeding babies. They were advised to use only water from approved municipal supplies or from private sources known to be safe. For 10 months no new cases of nitrate poisoning were reported in the state; now methemoglobinemia is again occurring. As in the previous outbreak, most of the cases are reported from the southwestern corner of the state. Physicians seeing babies with methemoglobinemia are asked to notify the Minnesota Department of Health and to see that samples of the water used in the infants' feedings are sent to the health department for nitrate analysis. Copies of a reprint on methemoglobinemia, which appeared in the August 1950 issue of *Minnesota Medicine,* are available from the health department on request.

NEW JERSEY

Protein Conference.—The Seventh Annual Protein Conference sponsored by the Bureau of Biological Research, Rutgers University, New Brunswick, N. J., in cooperation with the Food and Agriculture Organization of the United Nations, will be held January 26-27. The tentative program lists the following speakers:

Ernest Geiger, Ph.D., Los Angeles, Gastrointestinal Dynamics and Utilization of Protein and Amino Acid.
Jacob A. Stekol, Sc.D., Research Institute, Lankenau Hospital, Philadelphia, Folic Acid and Vitamin B_{12} in the Synthesis and Interconversion of Certain Amino Acids and Choline.
Robert R. Scalock, Ph.D., Iowa City, Phenylalanine and Tyrosine Metabolism with Respect to Water-Soluble Vitamins.
Paul R. Cannon, Chicago, Mineral Metabolism in Relation to Tissue Protein Synthesis and the Utilization of Protein Hydrolysates.
Michel Macheboeuf, Paris, France, Newer Aspects of Protein Metabolism.
Hugh M. Sinclair, Oxford, England, Clinical Aspects of Protein Malnutrition.
Ancel B. Keys, Ph.D., Minneapolis, Human Protein Metabolism in Periods of Food Shortage.

The conference will be open to all interested persons who register.

NEW YORK

Postgraduate Lecture.—The Warren County Medical Society, meeting at the Queensbury Hotel in Glens Falls January 11 at 9 p. m., will hear Dr. Russell L. Cecil, New York, speak on "The Treatment of Arthritis." The lecture has been arranged by the Medical Society of the State of New York with the cooperation of the New York State Department of Health.

State Ties up Collections of Cancer Group.—A temporary injunction to prevent the National Cancer Hospital of America, a Detroit organization, from disposing of any funds it may have in New York State was issued by Justice Joseph A. Gavagan of the State Supreme Court November 2. According to the *Chicago Tribune,* action was sought by state Attorney General Goldstein, who said the organization began operations 11 months ago on a $2,000 loan, has grossed $600,000 in contributions from the public and has less than $100,000 on hand. Contributions were supposed to go for development and maintenance of a special cancer hospital, he said, but "there is no hospital and it is hardly likely there ever will be." Defendants in Goldstein's petition for a permanent injunction, according to the newspaper, are the cancer promotion groups; De Haan, Inc., a New York direct mail firm accused of soliciting funds for the Detroit group; Lorettamary Gibson of Detroit, founder and executive secretary of the hospital; William F. Everton of Detroit, its vice president, and Arthur H. Levien of Rockville Center, Long Island, president of De Haan. In Detroit directors of the hospital said no money has been "misapplied or misappropriated."

Isotope Distribution Center.—The University of Rochester Medical School, in cooperation with the U. S. Atomic Energy Commission and five Rochester hospitals, has established a center for distributing radioisotopes for clinical and diagnostic use in hospitals of the area. The program, which is on a nonprofit basis, was undertaken by the university as a community service. The new isotope center uses facilities of the medical school and its atomic energy project for storing, handling and processing the radioactive materials shipped from Oak Ridge, Tenn. Wide interest has been shown by the Council of Regional Hospitals, as well as hospitals in Buffalo, Syracuse, Utica, Schenectady, Albany and other areas of the country, which may lead to widening of the Rochester program. If each hospital maintained its own program the initial investment would be from $20,000 to $60,000. Under the Rochester isotope center plan, the initial cost to the individual hospital is only $1,500 to $2,000. Standard rates for physicians and hospital fees and costs per dose have been agreed on. During the development period the university and its atomic energy project have furnished a portion of the salaries of staff members plus the cost of certain equipment. It is expected that the entire isotope center activity will become self supporting in the near future.

New York City

Academy Election.—Dr. William B. Parsons was elected president of the New York Academy of Medicine for a term of two years at a meeting December 7. Dr. Henry Alsop Riley was elected vice president and Dr. Shepard Krech treasurer.

Dr. Fulton to Give Salmon Lectures.—The Thomas William Salmon Lectures of the New York Academy of Medicine will be given by Dr. John F. Fulton, Sterling professor of physiology, Yale University School of Medicine, January 9-11. They will be presented at 8:30 p. m. on successive days in Hosack Hall at the academy building. The first lecture will be on the "Functional Anatomy of the Frontotemporal Cortex," the second on "Behavioral Studies in the Higher Primates" and the third on "Frontal Lobotomy and Human Behavior."

Research on Retrolental Fibroplasia.—The National Society for the Prevention of Blindness has made a grant of $2,500 to the New York University-Bellevue Medical Center to help determine the cause of the sudden increase in the number of premature infants being blinded by retrolental fibroplasia. According to Dr. Franklin M. Foote, executive director of the society, this disease strikes most often at infants who weigh less than 3 pounds (1,361 Gm.). Before 1940, he said, retrolental fibroplasia was rare, but since then the incidence has greatly increased. One reason may be that more premature infants are being kept alive. About 650 infants are now being blinded by the disease each year.

Suburban Hospital and Medical Center Affiliate.—A fourth New Jersey hospital, Mountainside Hospital in Montclair, has affiliated with New York University-Bellevue Medical Center, under the Regional Hospital Plan, which is a part of the teaching program of the Medical Center. Under it, increased opportunities for training are also offered to all physicians practicing in the communities of affiliated hospitals. Mountainside is a voluntary general hospital having 305 beds and 61 bassinets, as well as clinics for outpatients and an accredited School of Nursing. One or more members of the hospital's intern staff will be given the opportunity to take a year's training at the center with reference to the basic sciences. These physicians are obligated to return to their hospital for at least one year following completion of the course. Mountainside has appointed Dr. Chester B. Allen, of the department of medicine, as coordinator.

Financial Report of Medical Center.—More than $7,800,000 was expended to finance teaching, research and care of patients at the New York University-Bellevue Medical Center, according to the second annual report for the year ending June 30, 1950. While an over-all operating loss of $1,332,345.41 was sustained during the year, it was possible to complete the year with no net deficit because of the generosity of individuals, foundations, business firms and organizations that supported the work. The annual report shows operating expenses for the University Hospital (formerly New York Post-Graduate Hospital), $4,635,029; New York University College of Medicine, $2,156,596 and New York University Post-Graduate Medical School, $1,061,558. The center received nearly $1,500,000 in gifts and grants for research, and it contributes at least half a million dollars to research from its own purse. Contributions amounting to $2,225,150 were received for the medical center building fund. At the end of the year the total amount contributed toward the complete goal of $32,744,000 needed for the development and construction of the medical center was $21,909,478.

PENNSYLVANIA

University Begins Psychiatric Program.—The University of Pittsburgh School of Medicine has instituted a psychiatric program. Three appointments have been made: Dr. Henry W. Brosin, professor of psychiatry and chairman of the department of psychiatry at the University of Chicago Medical School; Dr. Benjamin M. Spock, staff member and consultant in psychiatry at the Mayo Clinic, Rochester, Minn., and Dr. I. Arthur Mirsky, associate professor of experimental medicine at the University of Cincinnati College of Medicine and director of the May Institute for Medical Research. Dr. Brosin has been named medical director of the university's Western Psychiatric Institute and Clinic. He will also hold the title of professor and head of the department of psychiatry in the university's school of medicine. Dr. Spock will be professor of child development, with appointments in the department of pediatrics at Children's Hospital, the Child Guidance Center and the Graduate School of Public Health. Dr. Mirsky will head the research division of the Psychiatric Institute, which will aim at correlating biologic changes to emotion and psychiatric disorders. Dr. Brosin begins his work on January 1. Dr. Spock is scheduled to begin July 1, 1951. Dr. Mirsky will start as soon as alterations are made to the institute to provide adequate research facilities.

Philadelphia

University to Enrol Physical Therapy Students in February.—Because of the national emergency, the School of Auxiliary Medical Services of the University of Pennsylvania plans to admit students in February to a one year certificate course in physical therapy. Dean Wesley G. Hutchinson, Ph.D., said the decision was prompted by the demand for physical therapists in the U. S. military and veteran's hospitals, as well as in centers actively engaged in the treatment of infantile paralysis cases. The class will be open to college graduates having required credits in the physical and biologic sciences, psychology and social science.

First of its kind in American medical history, the new School of Auxiliary Medical Services was organized last July and officially began operations with the opening of the 1950-1951 academic year. In addition to one year courses for college graduates, the school accepts students for four year courses leading to the degree of Bachelor of Science in Physical Therapy. As presently constituted the school also trains students for careers in occupational therapy. Later it is to be expanded to include divisions for other groups of auxiliary medical workers.

Pittsburgh

Dr. Walmer Named Head of Hygiene Foundation.—Dr. C. Richard Walmer, medical director of the Industrial Hygiene Foundation, has been named managing director of that organization to succeed the late John F. McMahon. The foundation operates under the auspices of the Mellon Institute. The Industrial Hygiene Foundation is a nonprofit research organization of more than 350 companies and industrial associations for advancing industrial health, improving working conditions and bettering human relations. These members, through their affiliation with the Industrial Hygiene Foundation, are entitled to the advisory and research services of other specialists in health problems, plus the technical facilities of the Mellon Institute, where the headquarters of the foundation are located.

WASHINGTON

Public Health Statistician Needed.—The State of Washington Personnel Board is seeking a public health statistical consultant for Seattle. Applicants must have had at least three years' experience in statistical work, one year of which must have been in public health statistics. The examination will consist of a rating of education and experience. The salary range is $340 to $425. Applications should be mailed by January 22 to the State Personnel Board, 1209 Smith Tower, Seattle 4.

GENERAL

Photos of Research Animals Sought.—The National Society for Medical Research, 105 North Wabash, Chicago, will pay $5 for each photograph of animals used for research which it accepts for its new book entitled "Animals Make Medical Magic." Pictures of all types of experimental animals in laboratory surroundings are being sought.

Seminar on Psychology.—The Medical Society of Analytical Psychology will give a six session seminar in New York during January and February,, titled "Introduction to Jungian Theory and Practice." The seminars are intended for physicians and qualified psychotherapists. They will be held on six consecutive Wednesdays from January 10 to February 28 at 8:30 p. m. in the New York Academy of Medicine Building, 2 East 103 Street, New York. The following are the subjects and the speakers of the seminar:

Eleanor Bertine, New York, Jung's Concept of the Unconscious.
Werner H. Engel, New York, Basic Structural Elements of the Psyche.
Charles G. Taylor, New York, Psychological Types.
Mr. B. Minkle, Jungian Dream Interpretation.
Mr. V. de Laszlo, Goal of Jungian Analysis.
Mr. E. Harding, Principles of Jungian Psychotherapy.

The fee for the seminar is $15. Information may be obtained from Dr. Werner Engel, 123 West 74th Street, New York.

Dr. Benedict Wins Dana Medal.—Dr. William L. Benedict, Rochester, Minn., is the 1950 winner of the Leslie Dana Medal, a national award given for outstanding achievement in preventing blindness. Dr. Benedict, professor of ophthalmology at the Mayo Foundation Graduate School, was selected for recognition by the St. Louis Society for the Blind, which annually awards the medal established in 1925 by Mr. Leslie Dana of St. Louis. The medal will be presented to Dr. Benedict at a dinner in the Hotel Chase, St. Louis, January 26.

Conference on Pregnancy Wastage.—The Committee on Human Reproduction of the National Research Council will hold its annual conference January 19-20 at the Hotel Commodore, New York. The subject will be pregnancy wastage. The speakers include Drs. George W. Anderson and Robert E. Nesbitt Jr., Johns Hopkins Hospital, Baltimore; Drs. Leona Baumgartner and Ephraim Shorr, Cornell University Medical College, New York; Lester E. Casida, Ph.D., University of Wisconsin, Madison; Dr. George W. Corner and A. I. Csapo, Carnegie Institution of Washington; Drs. Stewart H. Clifford, Arthur T. Hertig and Claude A. Ville, Ph.D., Harvard Medical School, Boston; Drs. Morris E. Davis and Edith L. Potter, University of Chicago; Dr. Edward C. Hughes, State University of New York Medical Center at Syracuse; Dr. Joseph W. Jailer and Howard C. Taylor Jr., Columbia University College of Physicians and Surgeons; Dr. Philip Levine, Ortho Research Foundation, Rariton, N. J.; Dr. Christopher Tietze, National Committee on Maternal Health, Washington, D. C., and William C. Young, Ph.D., University of Kansas, Lawrence.

Section Meetings in January.—The section meetings of the American Laryngological, Rhinological and Otological Society will be held in January. The Eastern Section will meet at the Bellevue-Stratford Hotel in Philadelphia January 12 beginning at 9:30 a. m. Invited speakers include Dr. Leandro M. Tocantins, Philadelphia, who will speak on "Causes and Management of Abnormal Bleeding from the Air Passages, Associated with Disorders of the Blood," and Dr. Joseph L. Hollander, Philadelphia, "Practical Problems in Use of Cortisone and ACTH." The Middle Section meeting will be at the Hotel Cleveland in Cleveland January 15. The invited speakers and their subjects are: William D. Neff, Ph.D., Chicago, "Neural Mechanisms of Hearing," and Dr. Lee G. Eby, Rochester, Minn., "Differential Diagnostic Significance of Recruitment in Ménières Disease and Angle Tumors." The Southern section will meet at Hotel Sans Souci, Miami Beach, Fla., January 17. At the Western Section meeting January 28-29 in the San Francisco County Medical Society Building, San Francisco, the invited speakers will be:

Ottiwell W. Jones Jr., San Francisco, The Cervical Area.
John W. Cline, San Francisco, President-Elect, American Medical Association, Socialized Medicine.
John L. Wilson, San Francisco, Stenosing Esophagitis.
Seymour M. Farber, San Francisco, Medical and Cytologic Diagnosis of Bronchogenic Carcinoma.

National Multiple Sclerosis Society.—The first citation dinner for distinguished service in the fight against multiple sclerosis was held at the Waldorf-Astoria Hotel, New York, December 5. Carl M. Owen, former president and chairman of the board of the society, and Ralph I. Straus, president, were cited for their leadership in making this society a force in the field of medical research. Dr. Howard A. Rusk, chairman, department of physical medicine and rehabilitation, New York University College of Medicine, was the guest speaker. The National Multiple Sclerosis Society is financing 11 research projects, including clinics at New York University-Bellevue Medical Center and Montefiore Hospital in New York, Boston State Hospital in Boston, Detroit Memorial Hospital in Detroit, and Cedars of Lebanon Hospital, Los Angeles. It also conducts professional and public education programs and renders services to multiple sclerotics with the assistance of its chapters.

FOREIGN

Campaign Against Trachoma Among Refugees.—The World Health Organization began in December the first large scale, scientifically controlled campaign for treatment of trachoma with the new antibiotics, chloramphenicol, terramycin and aureomycin, in several Eastern Mediterranean countries caring for Arab refugees. Supplies are being donated to WHO by drug manufacturers in Italy and the United States. The United Nations International Children's Emergency Fund will furnish additional quantities. The WHO program is under the direction of Prof. Giabattista Bietti of Parma University, Italy. Up to 80 per cent of the people in some districts of the Eastern and Southern Mediterranean have this disease. It is widespread in Asia as well as in the Mediterranean area and is continuously present in most Eastern European countries and several American republics. The program will eventually reach many thousands of cases and will permit precise determination of the value of each antibiotic used, the best method of administration, the optimum dosage and the financial cost of a complete trachoma campaign.

CORRECTION

Câmara Instead of Eamara.—In the twenty-third footnote in the article by Hoffman in The Journal of Dec. 2, 1950, page 1160, the second author's name is Câmara, A. A., instead of Eamara, A. O.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers. Feb. 13-15, April 16-17 (Part II only), June 18-20, Sept. 5-7. Ex. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Written.* July 20. Given simultaneously in several cities in the United States. Final date for filing application is Jan. 20. *Oral.* Coronado, Calif., April 4-7 and Memphis, Oct. 14-17. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

American Board of Dermatology and Syphilology: *Written.* Various Centers, Feb. 8. *Oral.* New York, April 6-8. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21, N. Y.

American Board of Neurological Surgery: *Oral.* Chicago, May 1951. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

American Board of Obstetrics and Gynecology: Part I. Written Examination and Review of Case Histories. Various locations. Feb. 2, 1951. Final date for filing applications was Nov. 5. *Oral.* New York City, May 10-16. Final date for filing application is Feb. 2. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, Pa.

American Board of Ophthalmology: *Written.* Various Centers, Jan. 5-6, 1951. *Oral.* San Francisco, March 11-15; New York, May 31-June 5; Chicago, October 8-13. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: *Part II.* Chicago, Jan. 25-26. Final date for filing applications was Aug. 15, 1950. Final date for receipt of Part I applications for 1951 was Dec. 30, 1950. Sec., Dr. Harold A. Sofield, 122 So. Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Written.* New York, Jan. 8-11, 1951. *Oral.* Richmond, Va., May 1-5. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

American Board of Pathology: *Written and Oral. Pathological Anatomy and Clinical Pathology.* Cleveland, April 23-24. Final date for filing application is March 15. Sec., Dr. Robert A. Moore, 1402 S. Grand Blvd., St. Louis.

American Board of Pediatrics: *Written.* Jan. 19. Under local monitors. Only written examination to be given during 1951. *Oral.* New Orleans, March 2-4. Ex. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Proctology: *Part I in Anorectal Surgery and Proctology.* Kansas City, Minneapolis, Philadelphia and San Francisco, May 12. Sec.-Gen., Dr. Louis A. Buie, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology: *Oral.* Atlantic City, June 5-9. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various centers, March 1951. Final date for filing applications was Dec. 1, 1950. *Written.* Various centers, Oct. 1951. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

Board of Thoracic Surgery: *Written.* Various Centers, Feb. 17. Final date for filing application is Feb. 1. *Oral.* New York City, April 19. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit.

American Board of Urology: Chicago, Feb. 10-14, 1951. Final date for filing applications was Sept. 1, 1950. Chicago, Feb. 9-13, 1952. Final date for filing applications is Sept. 1. Sec., Dr. Harry Culver, 314 Corn Exchange Bldg., Minneapolis 15.

Coming Medical Meetings

Annual Congress on Medical Education and Licensure, Palmer House, Chicago, Feb. 12-13. Dr. Donald G. Anderson, 535 N. Dearborn St., Chicago 10, Secretary.

National Conference on Rural Health, Peabody Hotel, Memphis, Tenn., Feb. 23-24. Dr. F. S. Crockett, 535 N. Dearborn St., Chicago 10, Chairman.

* * *

American Academy of Allergy, Hotel Statler, New York, Feb. 5-7. Dr. Walter S. Burrage, 208 E. Wisconsin Ave., Milwaukee 2, Secretary.

American Academy of Orthopaedic Surgeons, Palmer House, Chicago, Jan. 27-Feb. 1. Dr. Harold B. Boyd, 122 S. Michigan Ave., Chicago 3, Secretary.

American Society for Surgery of the Hand, Palmer House, Chicago, Jan. 26. Dr. Joseph H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

Atlanta Graduate Medical Assembly, Municipal Auditorium, Atlanta, Ga., Feb. 5-7. Mrs. Stewart R. Roberts, 768 Juniper St. N.E., Atlanta, Executive Secretary.

Central Surgical Association, Chicago, Feb. 22-24. Dr. James T. Priestley, Mayo Clinic, Rochester, Minn., Secretary.

International Post-Graduate Medical Assembly of Southwest Texas, Municipal Auditorium, San Antonio, Jan. 23-25. Dr. John H. Hinchey, P. O. Box 2445, San Antonio 6, Secretary.

Middle Atlantic States Regional Conference, Philadelphia, Jan. 18. Dr. William Bates, 2029 Pine St., Philadelphia 3, Secretary.

National Conference on Medical Service, Palmer House, Chicago, Feb. 11. Dr. R. E. Fitzgerald, 2218 N. Third St., Milwaukee 12, Secretary.

Sectional Meeting, American College of Surgeons, Hotel Statler, St. Louis, Jan. 22-23. Dr. James Barrett Brown, 508 N. Grand Blvd., St. Louis, Chairman.

South Central Branch, American Urological Association, Hotel Adolphus, Dallas, Jan. 29-Feb. 2. Dr. Rex E. Van Duzen, 721 Medical Arts Bldg., Dallas, Chairman.

DEATHS

Hutchinson, Rollo Wilson ⊕ Medical Director, Captain, U. S. Navy, Vallejo, Calif.; born in Milford, N. H., April 27, 1891; Harvard Medical School, Boston, 1917; entered the Naval service in June 1917 as lieutenant (jg); during his 33 years of active service served at many hospitals in the United States; during World War I served at the Naval Hospital, Newport, R. I.; served on the *USS Comfort, Mercy, Concord, Detroit* and *Colorado;* prior to hospitalization was assigned to the Commander General, Department of the Pacific; specialist certified by the American Board of Radiology; member of the American College of Radiology; died in the U. S. Naval Hospital, Oakland, November 13, aged 59, of coronary thrombosis.

Jackson, John Bert ⊕ Kalamazoo, Mich.; born in Cooper, Mich., June 11, 1876; Rush Medical College, Chicago, 1903; past president of the Michigan State Medical Society; member of the American Trudeau Society, American Roentgen Ray Society, Radiological Society of North America and the American College of Radiology; fellow of the American College of Physicians; specialist certified by the American Board of Radiology; served as health officer, city physician and president of the civic league; affiliated with Bronson Methodist and Kalamazoo State hospitals and Borgess Hospital, where he died November 3, aged 74, of arteriosclerotic heart disease.

Mitchell, Lang Allen ⊕ Stillwater, Okla.; born in Haleyville, Ala., May 20, 1881; University of Nashville (Tenn.) Medical Department, 1908; president of the Oklahoma State Tuberculosis Association; past president of the Payne County Medical Society; served during World War I; for many years served in the medical reserve corps and in the Oklahoma National Guard; college physician at the Agricultural and Mechanical College from 1925 to 1928; city health officer from 1927 to 1932, formerly county health officer; affiliated with Stillwater Municipal Hospital, where he died September 14, aged 69, of a ruptured abdominal aortic aneurysm.

Hunter, Norman McLeod, Hudson, Mass.; born in Alberton, Prince Edward Island, Canada in 1872; McGill University Faculty of Medicine, Montreal, Canada, 1901; member of the American Medical Association; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; for many years president of the Hudson Community Health Association; president of the Hudson National Bank; trustee of the Hudson Savings Bank and director of the Hudson Cooperative Bank; trustee of the Marlboro (Mass.) Hospital, where he died November 5, aged 77, of coronary thrombosis.

Elkins, William Harry, Topeka, Kan.; Barnes Medical College, St. Louis, 1903; member of the American Medical Association; for many years on the staff of the Atchison, Topeka, and Santa Fe Railway Hospital, where he died September 1, aged 83, of arteriosclerotic heart disease and nephrosclerosis.

Frank, Arthur, New York; Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn, Prussia, 1919; member of the American Medical Association; on the staff of St. Elizabeth Hospital; died September 25, aged 60, of heart failure.

Hall, Myron Foster, Elmira, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1899; died recently, aged 75, of carcinoma.

Jaffe, Benjamin Meyer ⊕ Baltimore; University of Maryland School of Medicine and College of Physicians and Surgeons of Baltimore, 1916; died recently, aged 55.

King, Clayton T., Greenfield Center, N. Y.; Albany (N. Y.) Medical College, 1898; died in Porter Corners recently, aged 73, of ulcer of the cecum.

Nevins, Susan, Lawrenceburg, Ky.; Southwestern Homeopathic Medical College and Hospital, Louisville, 1901; died in the Good Samaritan Hospital, Lexington, recently, aged 74, of coronary occlusion.

Oguri, Kanzo, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1920; affiliated with Brooklyn Cancer Institute and Prospect Heights Hospital; died October 24, aged 58.

Potthoff, Ernest William, Titusville, Fla.; Rush Medical College, Chicago, 1902; at one time practiced in Oak Park, Ill.; died October 12, aged 72, of coronary occlusion and cerebral thrombosis.

Robbins, Nelson John ⊕ Negaunee, Mich.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; served as mayor, city health officer and county physician; died October 25, aged 81, of heart disease.

Shaw, Robert Eugene, Whatley, Ala.; Medical College of Alabama, Mobile, 1898; member of the American Medical Association; died in Providence Hospital, Mobile, October 21, aged 79, of hypertrophy of the prostate.

Sherlock, William Paul ⊕ Hines, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1908; served during World War I; associated with the U. S. Public Health Service from 1920 to 1925, when he joined the Veterans Administration; died in the Veterans Administration Hospital October 22, aged 65, of malignancy of the gastrointestinal tract.

Sherman, Henry S., ⊕ Chicago; Rush Medical College, Chicago, 1917; an Associate Fellow of the American Medical Association; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; served during World War I; associate in clinical obstetrics at the Chicago Medical School; on the staff of the Mount Sinai Hospital, where he died October 28, aged 60, of acute myocardial infarction.

Slavich, John Francis, Oakland, Calif.; Medical Department of the University of California, San Francisco, 1904; member of the American Medical Association; served as councilman and as mayor; died in Providence Hospital October 2, aged 69, of cancer.

Smart, Elliott Plummer ⊕ Murphys, Calif.; College of Physicians and Surgeons, Los Angeles, 1912; fellow of the American College of Chest Physicians, American College of Physicians and the American Trudeau Society; served during World War I; medical director and superintendent of Bret Harte Sanatorium; formerly chief of tuberculosis service, San Joaquin General Hospital, French Camp; died October 13, aged 65, of cerebral hemorrhage.

Stowe, LeRoy, Colonial Beach, Va.; Medical Department of Tulane University of Louisiana, New Orleans, 1906; died in Washington, D. C., October 24, aged 72, of myocardial infarction.

Street, Charles Edward ⊕ Springfield, Mass.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; served during World War I; died in the Pittsfield (Mass.) General Hospital October 14, aged 77, of coronary thrombosis.

Talbot, Francis Farron ⊕ Niagara Falls, N. Y.; Georgetown University School of Medicine, Washington, D. C., 1939; on the staffs of the Memorial Hospital and Mount St. Mary's Hospital, where he died October 23, aged 36, of carcinoma of the stomach.

Thorne, Lewis ⊕ New Haven, Conn.; Yale University School of Medicine, New Haven, 1936; assistant clinical professor of psychiatry and mental hygiene at his alma mater; certified by the National Board of Medical Examiners; member of the American Psychiatric Association; served during World War II; shot and killed October 8, aged 42.

Walker, Albert Gould ⊕ San Diego, Calif.; University of Colorado School of Medicine, Denver, 1908; member of the American Trudeau Society; served during World Wars I and II; for many years affiliated with the Veterans Administration; surgeon, U. S. Public Health Service from 1920 to 1924; died October 14, aged 67, of coronary sclerosis.

Ward, Charles Douglas ⊕ Augusta, Ga.; University of Georgia Medical Department, Augusta, 1920; formerly assistant professor of clinical surgery at his alma mater; member of the American Association of Industrial Physicians and Surgeons; served on the staff of University Hospital; died October 12, aged 60, of coronary thrombosis.

Ware, Hugh Marshall, Warmsprings, Mont.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1910; member of the American Medical Association; served during World War I; affiliated with Montana State Hospital; died in St. James Hospital, Butte, October 9, aged 66, of heart disease.

Watt, Robert, Wenonah, N. J.; Jefferson Medical College of Philadelphia, 1897; member of the American Medical Association and the Medical Society of the State of Pennsylvania; served during World War I; for many years practiced in Philadelphia, where he was affiliated with the Frankford, Northeastern and Friends hospitals; died October 11, aged 80, of coronary occlusion.

⊕ *Indicates Fellow of the American Medical Association.*

FOREIGN LETTERS

LONDON

(From a Regular Correspondent)

Oct. 30, 1950.

The Food We Eat

Under this heading a correspondent, writing to the *Lancet* in a recent edition, supports previous correspondence which says that a change is taking place in our feeding habits that may be having physiological as well as social consequences. The correspondent is Dr. W. R. Thrower of London. Rationing, he says, probably expedited a social trend apparent before the war toward the popularity of snack bars. Meals obtained in these places usually consist of some form of carbohydrate with a relish of some kind. This type of meal provides a striking similarity to the meal of the Oriental, which is notoriously deficient in fat and first class protein, a circumstance believed to exert a profound effect on national vigor.

In days gone by, most artisans started the day with a breakfast which consisted largely of pork and had a midday meal usually of the packed variety, which though simple, was of a nutritional quality now difficult to achieve. In the evening a third meal was taken. Today, for breakfast, many persons get hardly anything at all or hurriedly eat a cereal; little wonder that teabreaks and other interruptions are frequent. Often these interludes are decried, but probably they reflect an unconscious desire to satisfy physiological demands. Break privileges may be abused and restrictive practices may be in operation, but he adds, he is concerned only with the medical side of the problem.

Anyone who has observed or worked with men doing continuous work of one kind or another recognizes that in recent years, despite a will to work, staying power has deteriorated. There is an insidious fatigue that creeps on in the evening and brings activities to a close, whereas in the past workers would willingly put in overtime. The extra rations, the correspondent points out, granted to certain manual workers is an official admission that something extra is needed, but somehow in practice this desired end is not achieved. When a man decided for himself the diet which best suited him in his work, he could get it. He sums up by saying that popular exhortations to increase production may prove more effective when the protein bait is more than a piece of cheese.

Vitamin A Deprivation in Man

In a recent issue of the *British Medical Journal* there is reviewed what is called one of the longest and most laborious nutritional experiments yet to be undertaken in this country. The experiment was carried out by the Medical Research Council. The investigation was stimulated by anxiety felt about the ability of the wartime diet to maintain the health of the population. The consumption of vitamin A had been increased by the Ministry of Food. Strenuous efforts in advertising campaigns to popularize carrots had been carried out. An insurance against severe deficiency was also provided by the compulsory addition to margarine of vitamin A concentrates, which were mostly obtained from whale livers. However, the article continues, doubts still remain about the exact amount of vitamin A required by human beings. In 1942 the Medical Research Council was requested to undertake experiments to obtain definite information on this point. The report of the investigation, which was organized by the Vitamin A Subcommittee of the Accessory Food Factors Committee, was given the title "Vitamin A Requirements of Human Adults: A Study of Vitamin A Deprivation in Man."

Twenty young male conscientious objectors and three women acted as volunteers. They were housed at the Sorby Research Institute, Sheffield, in a large villa with some rooms converted for use as laboratories. Organization of the investigation was in the hands of Dr. Kenneth Mellanby and subsequently of Prof. H. A. Krebs. Most of the volunteers had already proved their reliability in experiments on the transmission of scabies, and they tolerated without protest a monotonous diet made deficient in vitamin A and carotene by exclusion of foods such as butter, whole milk and its products, liver and other animal organs, fat, fish and all green and yellow vegetables and fruits. Laboratories at Cambridge, Liverpool, Oxford and Reading cooperated, and numerous routine tests for vitamin A and carotene were carried out, both on the blood and feces of the volunteers and on the foodstuffs they were allowed to consume. Apparatus was designed by Mr. W. Bartley, one of the volunteers, for measurement of the capacity for dark adaptation. The scope of the investigation can be judged by the size of the research team, which consisted of about 25 doctors, scientists and senior technicians, with the aid of many commercial firms, which provided specially prepared foodstuffs and also helped in other ways. The heavy task of coordinating the efforts of the various workers was done by Miss E. M. Hume.

Sixteen of the volunteers subsisted on the diet without any supplements, and two were given preformed vitamin A. Carotenoid pigments disappeared from the blood of these subjects almost completely during the first few weeks of the experiment. The decline in plasma vitamin A, which had in the first instance ranged from 65 to 120 international units per 100 ml., was much less rapid, and in one subject the original vitamin A blood level was maintained for no less than 22 months. The mean figure of 88 international units was obtained from tests made shortly after the experiment had started.

This fell to 74 international units in nine months. In seven subjects remaining under experimental conditions for 14 months the mean was still as high as 61 international units. The decline in both plasma carotenoids and vitamin A was prevented or reduced in control subjects by daily doses of 2,500 to 6,700 international units of carotene in various forms, while the fall in plasma vitamin A, but not the carotenoids, was prevented by doses of 2,500 international units of a distilled concentrate of vitamin A esters. In the parallel tests performed on these control subjects, some evidence was obtained of a seasonal variation in dark adaptation. Only three of the volunteers showed a deterioration in dark adaptation that was unrelated to the season of the year; all these three had plasma vitamin A values of 40 international units or less. Only in these cases was it possible to carry out satisfactory therapeutic tests. Preformed vitamin A, in a daily dose of 1,300 international units, was given over a prolonged period and was found to improve dark adaptation and to restore the plasma vitamin A to about its original level. With a daily dose of 1,250 international units of carotene in oily solution the amounts of vitamin A and carotenoids in the plasma were slightly increased, but dark adaptation was improved only when the dose was raised to 2,500 international units. The efficiency of absorption of carotene from carrots and green vegetables was determined by comparison of the amounts eaten and those excreted in the feces. With allowance for a safety margin and for wastage during absorption the daily requirement of an adult male may be assessed as 2,500 international units of preformed vitamin A, 4,000 international units of carotene in oil, 7,500 international units of carotene in green vegetables, or 12,000 international units in boiled sliced carrots. With ordinary diets, of course, the daily requirement will not be derived from a single item but will be contributed by foods containing both preformed vitamin A and carotene. Larger amounts of the vitamin may be needed by pregnant or lactating women and by children.

Apart from the changes mentioned the volunteers had no symptoms which could be ascribed to deficiency of vitamin A, though during the experiment two of them were found to be suffering from tuberculosis. While it may seem surprising that a diet containing only traces of the vitamin should have caused no symptoms of deficiency in most of the subjects, it has long been known that the human liver normally contains large amounts of vitamin A. In England before the war, Moore found that the reserves present in the liver of persons who died as a result of accidents usually appeared to be sufficient to meet body requirements for several months, and there is nothing in the Medical Research Council's report to indicate that wartime dietary changes have had the effect of decreasing reserves. It is, however, surprising that some of the volunteers were able to subsist on this restricted diet for one and a half to two years.

From this one must conclude, the article continues, that the reserves of the liver are mobilized and expended with great economy by the body. The clear evidence of incipient vitamin A deficiency found in three out of 16 subjects was perhaps as much as could be expected from an experiment which could not be prolonged indefinitely.

ITALY

(From a Regular Correspondent)

FLORENCE, Oct. 20, 1950.

Present Development of Tomography

One of the most interesting scientific reports at the International Medical Meetings of Verona was a discussion by Professor Vallebona, director of the Institute of Radiology of the University of Genoa, of the origin and development of tomography. He pointed out that the common roentgen examination deals with the superimposed shadows of various parts of the body and, although the outlines of the more opaque organs and structures predominate, other outlines of more transparent parts overlap into their shadow. A complex picture results, in which it is not always possible to differentiate the radiographic contour of a certain organ or layer. Tomography, on the other hand, permits observation of a selected plane of an organ, eliminating shadows of structures situated in other areas.

The first patents for this new system of investigation were issued during the years 1921 to 1927 in France and in Germany. The first publication on the subject was that of Professor Vallebona, in February 1930, which included reproductions of the first tomograms made. At the Ninth Italian Congress of Radiology held in Turin in May 1930, the speaker discussed his preliminary results and stressed that with this new technic it was possible to examine almost separately the various regions of the base of the skull, largely avoiding superimposition of shadows.

Vallebona claimed priority in 1932 and was later given general recognition. In 1934, Grossmann and Chaoul designed an apparatus that was widely adopted in various countries. On the occasion of Vallebona's report to the Congress of Radiology of Turin (1930), Professor Busi proposed the name "stratigraphy" for this method, a term since adopted in Italy. Various terms have been used in foreign countries, such as planigraphy, tomography and laminography, as the American authors prefer. The methods are fundamentally the same, being based on a single principle, which consists in moving the patient or the patient and the plateholder or the complex x-ray tube to eliminate the shadows of layers that are of no interest. The movements may be more or less complicated, according to the variations of the method, but the types of movements may be reduced to two categories according to whether the elimination of the shadows is obtained with unidirectional or multidirectional movement. Theoretically, preference should be given to multidirectional movement, since it best eliminates the disturbing shadows. However, the unidirectional movement permits a shorter exposure time and is easier in practice. The direction of the movement should be selected according to the region of the body that is being studied. In principle, it is preferable to keep the patient quiet, moving the x-ray tube and the film.

Tomography has its greatest practical application in the study of the chest, especially in pulmonary tuberculosis. In this it offers the following main advantages over normal roentgenograms: (1) demonstration of lesions in cases unrevealed by the customary examination, (2) study of the finer details of lesions already demonstrated by customary examination and (3) elimination of erroneous results caused by superimposition of shadows.

The method has been considerably improved, making it possible to obtain tomograms in a plane perpendicular to the axis of the body. This method of examination, "transverse axial stratigraphy," was achieved by Vallebona in 1947. It is part of the regular studies at the Institute of Radiology of the University of Genoa, a special instrument built by Zuder, the "pantix-strator," being used.

Clinical Polymorphism in Salmonellosis Epidemics

Drs. Scotti and Sicca reported to the Medico-Surgical Society of Pisa on the appearance of various syndromes in the course of salmonellosis epidemics. The speakers studied eight minor epidemics. Bacteriologically, Salmonella typhimurium, S. enteritidis, S. derby and S. paratyphi have been isolated. Clinically, septic (many fatal), typhoid and acute gastroenteric forms were observed. Among the latter, five cases were of a choleriform type (one fatal), two were complicated by hepatorenal syndromes, two by glomerulonephritic syndromes and two were of a mild enterocolitic type. The speakers showed that this variety of clinical forms has been observed in the course of every epidemic outbreak. Variations should not therefore be attributed to the type of the infectious species or to different strains of the same species. They did not find any substantial evidence that the diversity of clinical forms observed may be related directly to the bacterial attack or to toxins that might have been involved.

Professor Pavlov's Centenary

The University of Rome commemorated the centenary of the birth of the physiologist Pavlov. At the Institute of Psychology of the Faculty of Medicine, a display on the scientific work of the great physiologist was prepared, showing through photographs, graphic illustrations and drawings the fundamental contributions made by Pavlov during his long period of activity as investigator in the various fields of physiology and of psychology. Martino, professor of physiology and rector of the Universiy of Messina, gave the commemorative speech, discussing Pavlov and the importance of his work as a physiologist and stressing its original creative quality.

Professor Ponzo, director of the Institute of Psychology of the University of Rome, discussed the ingenious discoveries of Pavlov in the field of psychology. The direction given by Pavlov to psychological thinking constitutes one of the fundamental bases of contemporary psychology, having given rise to behaviorism.

DENMARK

(From a Regular Correspondent)

COPENHAGEN, Oct. 23, 1950.

Hospital Ship for Korea

Shortly after the outbreak of war in Korea, Denmark expressed a desire to participate on the side of the United Nations. To the suggestion that Denmark should provide a field hospital, it was pointed out that the country could not dispense with such a fully trained unit at the time. So a compromise was reached according to which Denmark should send a fully equipped hospital ship. The president of the Danish Red Cross, Commander Hammerich, an ex-naval officer, undertook command of this unit and *Jutlandia*, a motor boat of about 8,500 tons, was chartered by the Danish government with the understanding that the Danish Red Cross should be responsible for the organization and management of this unit. Dr. Karl Lehmann took an active part in the negotiations leading up to this arrangement.

Jutlandia is a combined passenger and cargo ship with a crew of about 100. Its passenger cabins, being too small to serve as hospital wards, are to be reserved for the members (about 100) of the Red Cross staff. Six comparatively large wards provide space for 200 hospital beds, and there is to be a reserve of some 50 other hospital beds. Two elevators, each accommodating six stretchers, are being built into the ship, and the middecks are being altered to provide operation theaters and various other rooms needed for anesthesia, radiologic examinations and the like. The hospital staff will include about 15 doctors, divided between a large surgical department and a smaller medicoepidemiological department. On the surgical side there will be three operation teams, with three surgeons on each. They will include general surgeons and specialists in surgery of the brain and lungs. There will be altogether 40 nurses as well as about 30 male and female orderlies. With a ship's chaplain and many other persons specializing in the material and spiritual needs of a modern community, *Jutlandia* will be a self-sufficient unit. It is estimated that the ship will not be in readiness to sail for Korea before the end of November.

Aureomycin

Reports from several hospitals published in a recent issue of *Ugeskrift Laeger* are remarkably unanimous in praise of aureomycin. At the Blegdam Fever Hospital (chief: Prof. H. C. A. Lassen) treatment of virus pneumonias with aureomycin was started in December 1949. Dr. T. Hildan and Dr. S. Nörregaard have reported on 13 adults with primary atypical pneumonia diagnosed as such on the basis of the clinical picture and the refractoriness of the disease to penicillin and sulfonamides. Serving as controls were 18 adults who, according to the above criteria, had the same disease and were treated in the same hospital in 1949. While the temperature fell by crisis in the aureomycin group (in 10 cases within 12 hours), it nearly always fell by lysis in the control group. The duration of fever was also on the average shorter in the first than in the second group. The dyspepsia liable to follow large doses of aureomycin given by mouth was not observed when each dose did not exceed 0.5 Gm. A dosage of 0.5 Gm. five times a day may, it is suggested, in the future be reduced to 0.25 Gm. four times a day, and in most cases the drug may be discontinued after three or four days.

At the neurological department of St. Joseph's Hospital in Aarhus Dr. Jessen (chief) and Dr. Mosegaard have found aureomycin successful in two cases of herpes zoster of the eye. From Frederiksborg Central Hospital in Hilleröd (chief: Dr. Torben Andersen) comes a report from Dr. Ebbe Thomsen of the successful treatment with aureomycin of a 2 year old child with meningitis (caused by Pfeifferella mallei).

Treatment of Acute Tonsillitis with Penicillin

Between October 4, 1948 and June 11, 1949, a carefully controlled investigation of the effects of penicillin on acute tonsillitis was carried out at the Blegdam Fever Hospital by a team of doctors whose findings are published in a recent number of *Ugeskrift for Laeger*, the organ of the Danish Medical Association. All the patients admitted to hospital for acute tonsillitis in the period under review were sent to one or the other of two departments—a penicillin department and a control department admitting patients on alternate days. Several of the 835 patients were disqualified for this comparative study for various reasons, and there remained 507 patients, 349 of whom suffered from ordinary acute tonsillitis (group I), 132 from phlegmonous tonsillitis (group II) and 26 from tonsillitis ulcerosa (group III). The adult patients treated with penicillin were given 150,000 units twice daily for six days, the dosage for children being smaller and varying with their age. The controls were given only symptomatic treatment with confinement to bed.

The authors of this study, T. Bennike, K. Brøchner-Mortensen, E. Kjär, K. Skadhauge and E. Trolle, conclude that penicillin has a definitely beneficial effect on streptococcic tonsillitis and phlegmonous tonsillitis since fever and throat pain disappeared earlier in the penicillin-treated cases than in the controls. There was also a reduction in the penicillin-treated group in the number of pyogenic complications during the acute phase of the disease. But the penicillin-treated group did not fare better than the controls in the matter of relapses and morbid sequelae, and it would seem that penicillin had no appreciable effect in cases of tonsillitis in which streptococci were not found. This conclusion applies also to the many children thus treated. It is evident that the bacteriologic flora of the tonsils is an important factor determining success or failure with penicillin treatment.

Care of the Mentally Defective Child

In Norway, with a population of about 3,000,000, systematic efforts have been made to improve the lot of the mentally backward child for more than half a century. As Dr. Baard Brekke, secretary of the Norwegian National Association for Mental Health, has lately pointed out in a comprehensive review of the subject, there is much still to be done. Since World War II the government has encouraged the opening and successful management of small private nursing homes and "working homes" for low grade oligophrenics. In 1949 the government undertook to support such homes by a certain economic guarantee with a view to stimulating their development.

The number of oligophrenics in need of institutional care has been estimated at about 6,000. The mental equipment of some 1,200 children is regarded as inadequate for any school attendance whatever. There are also some 1,700 children of school age in need of special education (intelligence quotient approximately 50-75). About 1,600 children attend special schools, of which there are two in Oslo. These schools are not supposed to accept children with an intelligence quotient below 70. Unfortunately, many children in need of special classes do not attend them but remain at home or are a nuisance in the ordinary elementary schools.

There are 12 reformatory schools for children and adolescents aged 9 to 18. An investigation of these schools by Dr. E. Haugen in 1937 led to some disquieting disclosures. He found normal intelligence in only 15 per cent, and in 62 per cent he found an intelligence quotient below 75. It was below 50 in 7 per cent. His investigations led to the appointment of a state commission, which in 1939 proposed a whole series of reforms, with greater discrimination in the selection of candidates for these schools. These are just a few of the items of information entering into the machinery of a widespread scheme for dealing systematically with every aspect of the problem of the mentally defective child. Other aspects of this problem will be discussed later.

Death of Dr. Jersild

An obituary notice of Dr. Olaf Jersild (born July 6, 1867; died May 27, 1950), who was head of the Rudolph Bergh Hospital in Copenhagen in the period of 1916-1937, brings out the interesting fact, unfamiliar to many of his junior colleagues, that it was on his initiative that the system of centralizing all the notifications of syphilis in the serologic department of the State Serum Institute was adopted throughout Denmark. When this system was first proposed during World War I, considerable opposition arose for fear that the anonymity of the patient would not be preserved. In February 1919, at a meeting of the Danish Dermatological Society, Jersild presented a scheme that, by its provision for strict anonymity, was acceptable by all. The system also satisfied the requirements of even purist statisticians. It was in operation as early as 1920 and has since then provided information of both national and international value, which has formed the basis of numerous scientific studies of syphilis.

BRAZIL

(From a Regular Correspondent)

Oct. 30, 1950.

Treatment of Blastomycosis

In the Faculty of Medicine of São Paulo Dr. Carlos da Silva Lacaz performed some clinical experiments with sulfonamide drugs in the treatment of blastomycosis. He drew the following conclusions:

1. Sulfonamide therapy of blastomycosis leads to good clinical results in most cases.
2. Relatively low blood concentration in vivo of different sulfonamide compounds causes a good therapeutic effect. This fact has already been observed by Padilha Gonçalves (1946), who demonstrated the sensitiveness of Paracoccidioides brasiliensis to the fungistatic action of those substances.
3. Among the sulfonamide compounds examined in the treatment of South American blastomycosis, sulfadiazine and sulfamerazine are the best therapeutic agents.
4. It is always advisable to determine the concentration of the sulfonamide drugs in the blood to verify how much of the compound is absorbed and utilized and how many patients acquire a resistance to the product.
5. Great variations in the results were obtained with different dosages and the average daily dose and the total dose cannot be fixed inflexibly.
6. Triturated sulfadiazine gives lower blood concentrations than nontriturated sulfadiazine.
7. The combination of sulfadiazine and sulfamerazine offers great value in the treatment of blastomycosis.
8. Besides preventing the appearance of crystals in the urine, this mixture allows the use of two sulfonamides with good individual tolerance and with a high and constant blood concentration.
9. Even with high blood concentrations, sulfadiazine and sulfamerazine in vivo have not a fungicidal activity but a fungistatic one on Paracoccidioides brasiliensis.
10. It is not sufficient to give the patient with blastomycosis the sulfonamide preparations even in high blood concentration if his general conditions are not ameliorated and if his immunity against the infection is not aided.
11. The cure of blastomycosis depends principally on three factors: sufficient blood concentration of the medicament, susceptibility of the causative microbe to the sulfonamide drug used, and a sufficient number of phagocytes to engulf and destroy the parasites.
12. The immune-allergic factor in blastomycosis deserves more attention from investigators.
13. The combination of sulfadiazine and sulfamerazine is well tolerated by patients with blastomycosis; it reaches a high concentration in the blood and the healing process is completed after a relatively short time; however, relapses can occur. For that reason strict observation of the patients is necessary.

Two New Vectors of Schistosoma Mansoni

Dr. Durval T. Lucena, of the Laboratory of the Malaria Division, National Department of Health, informed the Brazilian Society of Hygiene that two snails which are common vectors of Schistosoma mansoni in South Africa, and had never before been observed in Brazil, had been recently found near Santos, state of São Paulo. In a batch of snails captured at Saboó, near Santos, by Dr. Carlos V. Dutra, at the request of Dr. Lucena, the authors discovered two species entirely different from all other snails of Brazil. The samples were sent to Prof. J. Boquaert, of the Museum of Comparative Zoology of Harvard College, with whom Dr. Lucena has been collaborating in the study of Brazilian snails. The two snails are Biomphalaria alexandrina pfeifferi Krauss and Bulinus tropicus Krauss, both vectors of S. mansoni, and the latter also of Schistosoma hematobia. The fact represents the probability of aggravation of the problem of intestinal schistosomiasis in Brazil, which our health authorities are already combating in the northeastern section of the country, and the possibility of creation of a new focus of the disease near Santos, where schistosomiasis has never occurred before.

A Laboratory of Embryology

Dr. Knud H. Krabbe, head of the department of neurology of the Kommunehospitalet of Kopenhagen, Denmark, is a guest of the Oswaldo Cruz Institute in Rio de Janeiro, to cooperate in the organization of a laboratory of compared embryology. During his stay Dr. Krabbe will lecture at this institute, at the National Academy of Medicine and at the Neurological Institute of Rio de Janeiro University on (1) organization of embryologic researches; (2) importance of embryology in clinical medicine; (3) morphogenesis of the cerebrum in mammals, reptiles and birds; (4) cerebrum epiphysis and the parietal organs; cerebrum paraphysis; (5) generalized diseases, congenital and hereditary; (6) inflammatory and demyelinizing diseases of the nervous system; (7) subcommissural and subfornical organs of the cerebrum, and (8) future research on the pathology of the nervous system.

Keloidian Blastomycosis

A study of a dermatosis, called keloidian blastomycosis, or Jorge Lobo's disease, was reported by Drs. Nery Guimarães and D. G. Macedo, of Instituto Osvaldo Cruz. Keloidian blastomycosis is a benign dermatosis, occurring on the American Continent and predominating in the Amazon Basin. It is a chronic disease and resistant to known therapeutic agents. It is produced by a fungus (Glenosporella loboi fonseca and leão, 1940) that is difficult to cultivate in the usual artificial mediums and is of low pathogenicity in laboratory animals. Keloidian blastomycosis occurs on the American continent between the Tropics of Cancer and Capricorn, with a large incidence of cases near the Equator. Only nine cases have been reported in 20 years. However, if the methods of diagnosis were known, principally in the Amazon region, many more cases would undoubtedly be discovered.

Spondylolisthesis

Spondylolisthesis is not as infrequent as many physicians formerly believed, according to Dr. Manoel Campanario, radiologist of Estrada de Ferro Sorocabana, São Paulo. Diagnosis is easy in the advanced cases but is difficult in the early ones. Slipping of the vertebral body can be measured by three technical methods, which he has described. The roentgenologic technic requires many views with the patient in the anteroposterior, oblique and lateral, recumbent and standing positions.

Spondylolisthesis may at times be confused with vertebral anomalies which have no pathologic significance. The clinical significance of the spondylolisthesis is varied. It can be absent, although sometimes it is remarkably apparent. In the latter cases surgical procedures are indicated.

CORRESPONDENCE

BACTERIOLOGIC ENVIRONMENT IN CHRONIC OR REPEATED INFECTIONS

To the Editor:—The recent publication of my bacteriologic studies on patients suffering from respiratory infections (Prigal, S. J., and Molomut, N.: Bacteriologic and Epidemiologic Approach to the Treatment of Respiratory Infections with Antibiotic Aerosols, J. A. M. A. 144:897 [Nov. 11] 1950) prompts this communication, since some time will elapse before the detailed clinical studies will be reported.

The role of the environment in the production of disease has many facets, including socioeconomic and bacteriologic. It is with the latter that this communication is concerned, since it is my opinion that chronic or repeated respiratory infections are improperly diagnosed and treated in many cases. It is insufficient to diagnose chronic bronchitis, chronic infective asthma or chronic sinusitis. What organism or organisms are involved? What antibiotics can be employed? Does the patient reinfect himself from a focus such as a chronic blepharitis or conjunctivitis? Is there a carrier nearby that reinfects the patient? One must utilize for these chronic cases accepted principles of public health employed in combating contagious diseases of serious import. Ordinarily these illnesses do not threaten life directly, but they do take a terrific toll in the number of persons involved and the debility produced.

In the case of an infant of 12 months who has had repeated attacks of tonsillitis since the age of 1 month and for the past six months has had asthmatic bronchitis, bacteriologic investigations strongly implicated the mother as the source of the child's illness, since she has had no less than six acute attacks of purulent conjunctivitis in the past year. Although apparently "cured," the eye still yields a hemolytic Staphylococcus as does her pharynx. Is it mere coincidence that repeatedly one can culture a pathological Staphylococcus from the infant's pharynx?

A girl of 5 has had repeated colds since the earliest days of her life, with two episodes of bronchopneumonia and, more recently, asthma following each rather frequent "cold." She will probably continue to have these episodes in spite of allergic investigations and proper antibiotic therapy, because she has a loving mother who also has been subject to "colds" since childhood—very mild, to be sure—and who always sniffles and hawks. The patient will be lucky if in her later years she avoids bronchiectasis and does not become chronically ill. Is it coincidence that both mother and child yield on culture beta hemolytic streptococci and beta hemolytic Proteus vulgaris? Cultures taken from the father reveal beta hemolytic streptococci and hemolytic staphylococci, although he is asymptomatic. Is the child being exposed to a double hazard? Quite possible.

These observations need not be limited to children; I have observed a wife who has had severe asthma and probably some bronchiectasis for three years. Repeatedly a hemolytic Staphylococcus has been cultured from the pharynx and from an eye which is subject to repeated conjunctivitis and blepharitis. One might consider it coincidental that the same organism is obtained on culture from the pharynx of the husband, who has no real complaint other than nasal stuffiness and postnasal drip. The history reveals, however, that after each hospitalization there is remarkable abatement of symptoms. Is this due to the separation from the husband, a possible carrier, or has there been avoidance of some allergenic contact at home? The solution suggests itself readily by this episode. In view of the severity of the asthma following each cold, the patient was sent to Florida for the winter, where she did remarkably well until the husband came for a brief visit. She caught cold again and was in misery for the rest of the winter. The patient is getting along well at home now while the husband is subjected to antibiotic therapy.

More pertinent is the family of five now under consideration, in which two of the children, boys aged 12 and 10, have asthma of the mixed type due to pollen and other specific sensitivities as well as to secondary infection. The older one has sinusitis, the younger has periodic bouts of fever without any apparent cause other than a red pharynx. The youngest child, aged 5, has frequent attacks of tonsillitis; she never quite loses her "cold" during the winter. The mother had a "cold" recently of long duration but not disabling and has been left with a mild cough. The father, a hay fever victim, has become accustomed to nasal symptoms even though they continue beyond the ragweed season. All five members of the family have yielded by pharyngeal culture a hemolytic Streptococcus. The father and sons have a hemolytic Staphylococcus. The clinical story is suggestive of contagion. The mother became ill, then each of the children in turn had a respiratory illness. The father was the only one not disabled. Is he the carrier?

Although I have emphasized infective asthma in the aforementioned cases, the same factors undoubtedly prevail in chronic bronchitis, bronchiectasis and sinusitis. And one can go further than respiratory diseases and investigate the bacteriologic environment in rheumatic fever, nephritis and other diseases produced or aggravated by infection. This bacteriologic approach raises the question about the true evaluation of the role of heredity in such diseases as asthma and rheumatic fever. Suspecting heredity simply on the frequency of occurrence of a specific disease within the family unit is not entirely valid in the case of diseases due to infection. One must consider the bacteriologic environment; otherwise, one must perforce postulate a hereditary susceptibility to illness, always difficult to prove.

Two factors stand out in observations on the carrier state made by Molomut and me. The first is that the dominant but not exclusive organism is the hemolytic Staphylococcus, as noted in many of my cases. This organism is hardy, frequently resistant to penicillin and some of the other antibiotics, and, because it ordinarily does not threaten the life of the host, it does not produce sufficient immunity to destroy the organism. Thus, there is established a continuing parasite-host relation—the host is now a carrier. Second, the carrier or carriers should be treated simultaneously with the patient. Although the organisms may be morphologically identical, the reaction to antibiotics may differ. One observes frequently hemolytic staphylococci, in children, resistant to penicillin (owing to its frequent and inadequate use), whereas the same organisms, in the untreated parent (carrier), are still sensitive to that antibiotic. Our investigations continue and will be reported in detail at a later date.

Samuel J. Prigal, M.D.,
55 Park Avenue, New York 16.

SALT-FREE DIET

To the Editor:—In recent numbers of THE JOURNAL there have appeared many controversial papers and letters about the role and value of the salt intake and restriction of hypertensive patients. For Frederick M. Allen the etiological role of salt excess seems to be established, while Paul D. White and his associates and Arthur M. Master and co-workers hold that efforts to lower the blood pressure by means of drugs or strict low sodium or rice diets may be unnecessary for most hypertensive persons.

One is astonished that in all the numerous papers about this subject no reference is made to the methods of the French school. Pasteur Vallery-Radot writes in his booklet "Premières vérités (ou soidisant telles) des maladies de renies" (1937) that the French determine whether the patient has a dry or humid retention of sodium or chloride and prescribe a rigorous salt-free diet only if the patient has proved retention. They have two methods of determining whether there is retention. In the light of these concepts the problem is simple enough: it is advisable to restrict the intake of salt by hypertensive persons to prevent retention, but a salt-free diet is necessary only in cases of proved retention. It is clear that the salt-free diet can alleviate only the symptoms due to retention of salt and cannot have any influence on troubles caused by the hypertension itself or the concomitant arteriosclerosis.

SAMUEL KRAUS, M.D., Kfar Neter, Israel.

BOOK ON THE SEXUAL CRIMINAL

To the Editor:—The review of the Sexual Criminal in THE JOURNAL of October 28 has been brought to my attention. This book should have been reviewed with a strong condemnatory note. It is complete nonsense from a medical point of view and is obviously designed to appeal primarily to sadomasochists. How the lurid picture of a dismembered arm or leg would help explain sexual crime is difficult to understand. Under rogues gallery pictures there are such ridiculous statements as "note the curled lip and dreamy eyes typical of the sexual offender."

MANFRED S. GUTTMACHER, M.D.,
Chief Medical Officer, Medical Service of the
Supreme Bench of Baltimore,
Court House, Baltimore.

FREE MEDICINE

To the Editor:—I am sending you a direct quotation from a letter I received from a patient who recently went to England to visit her son, who is stationed there.

"The reason I'm writing you is that I have finished the pills that you gave me to bring along to England, and now I've taken the prescription to the druggist here and they say I would have to go to a Dr. first and then bring it back to them on account of the national health clinics here, so I went three times and could not get attended to on account of the waiting list. Would you kindly send me some by air mail enough to last me the remainder of my stay here."

G. VERNON JUDSON JR., M.D.,
213 Clements Bridge Road, Barrington, N. J.

PERIPHERAL FACIAL PALSY

To the Editor:—I read with interest the article of Dr. Theodore T. Stone on peripheral facial palsy (multiple attacks in three brothers) in THE JOURNAL (**143**:1154 [July 29] 1950). His statement that familial and hereditary factors are not mentioned in the literature is, however, not true. In 1947 I reviewed the literature on the hereditary disposition for neuritis and I mentioned a family that I had observed, in which a brother, a sister and a son of the brother had facial palsy (Over families met hereditaire dispositie tot het optreden van neuritiden gecorreleerd met migraine, *Psychiat. en Neurol. bl.* No. 1/2). I was the first to describe on this occasion a syndrome seen by me in two families with hereditary disposition for neuritis associated with migraine. Dr. Stone writes: "In 1 patient (case 2) in addition to two attacks of Bell's palsy (neuropathy of facial nerve) there occurred two episodes of ophthalmic migraine with external ophthalmoplegia." It might be that Dr. Stone would find the same syndrome if he examined the entire family.

J. G. Y. DE JONG, M.D.
St. Jozefziekenhuis, Heerlen-Holland.

REACTIONS TO VITAMIN B_{12}

To the Editor:—No reports of local reactions to parenteral administration of vitamin B_{12} have come to my attention to date, although I have observed such an incident. The patient is a 47 year old, lean, white, ambulant woman who has had multiple radicular neuralgias for many years. Evidence of hypovitaminosis had been present even prior to cholecystectomy and posterior gastroenterostomy for chronic cholecystitis and duodenal ulcer in 1937. Doses of 7.5 micrograms of vitamin B_{12} (concentrate) were given subcutaneously in the right or left deltoid regions on March 17, March 24, April 18 and April 28, 1950, without undue effect. On May 17, she received 10 micrograms in the left arm, which was followed by pronounced swelling and pain in the arm lasting several days. On May 22 the same dose in the right arm produced a similar effect. No general effects were noted by the patient. Nodules were still present at administration sites on August 7. They were not present when I examined her on October 10.

HENRY A. ARKLESS, M.D.,
255 South Seventeenth Street, Philadelphia 3.

Miscellany

THE ATOM

An atom is so small that about a hundred billion billion of them are contained in the head of a pin. The nucleus—the object of study in nuclear science—is some 10 thousand times smaller than the atom. If an atom were expanded to the size of a concert hall, its central nucleus would be smaller than a housefly. The nucleus constitutes nearly all of the mass of the atom and, consequently, the mass of all things. A piece of solid nuclear material the size of a child's marble would weigh more than 200 million tons. . . .

Scientists who study the nuclei of atoms speak in terms of the following entities they are able to detect and measure:

PROTON

The nucleus of a hydrogen atom is called a proton. This particle has a positive electric charge equal numerically to the negative electric charge of the electron and is so small that it takes 2.72×10^{26} to make a pound. The nuclei of atoms of other substances contain a number of protons equal to the atomic number of the element.

NEUTRON

The nuclear particles which have no electrical charge are called neutrons. They weigh approximately the same as protons.

NUCLEON

The word nucleon means either a proton or a neutron.

BETA PARTICLE

One of the radiations found shooting out of certain radioactive materials, named the beta particle, appears to be the same kind of electron that is found in the outer structure of all atoms. It has a unit negative charge equal and opposite to the positive charge of the proton and is nearly weightless, having less than 1/1800 the mass of a proton.

POSITRON

Like the electron, the positron has a unit charge of electricity but is positive instead of negative, i. e., it has the same charge as the proton. It is evanescent, dissipating itself in a flash of radiation as soon as it encounters an electron, which disappears with it.

MESON

Predicted from theory as a particle necessary to explain the forces of nuclear structure, the meson was observed for the first time in 1936 in the violent nuclear shattering caused by high energy cosmic rays in the upper atmosphere. Several varieties exist, both positive and negative, their mass averaging about one-sixth that of the proton.

NEUTRINO

A nearly weightless particle, without charge. Like the neutron, the neutrino was predicted on theoretical grounds, but it has not yet been observed, as the neutron had not been observed before 1932 and the meson before 1936.

GAMMA RAYS

These are not particles in the same sense as those above, but flashes of electromagnetic radiation emitted by the nucleus when it has excess energy. These flashes are often called photons.

Seventh Semiannual Report of the United States Atomic Energy Commission, January 1950

Council on Medical Education and Hospitals

NEW HOSPITALS REGISTERED

The following hospitals were registered by the Council on Medical Education and Hospitals of the American Medical Association at its meeting in Cleveland, Dec. 4, 1950.

Alabama

George H. Lanier Memorial Hospital, Langdale
Davis Clinic-Hospital, Leeds
Leeds Hospital, Leeds
Oak Street General Hospital, Montgomery
Mizell Memorial Hospital, Opp

Arizona

Casa Grande Hospital, Casa Grande
Douglas Hospital, Douglas
Safford Inn Hospital, Safford

Arkansas

Veterans Administration Hospital, Little Rock
Howard County Memorial Hospital, Nashville

California

Pioneers Memorial Hospital, Brawley
Mount Sinai Hospital and Clinic, Los Angeles
Temple Hospital, Los Angeles
Butte County Hospital, Oroville
Sierra Madre Lodge, Pasadena
Maimonides Health Center for Chronic Sick, San Francisco
Santa Rosa Memorial Hospital, Santa Rosa

Colorado

Montrose Memorial Hospital, Montrose
Rangely Community Hospital, Rangely
Routt County Memorial Hospital, Steamboat Springs
Yuma Community Hospital, Yuma

Florida

Miami Hospital, Miami

Georgia

Memorial Hospital, Adel
Huey Hospital, Homerville
Dr Kitchens Clinic Hospital, LaFayette
Kennestone Hospital, Marietta
Stewart Webster Hospital, Richland
Cobb Memorial Hospital, Royston
Conner Bedingfield Hospital, Vidalia

Idaho

Bingham Memorial Hospital, Blackfoot
Caldwell Memorial Hospital, Caldwell
Valley County Hospital, Cascade
Memorial Hospital, Weiser

Illinois

Ida Mae Scott Hospital, Chicago
Longwood Convalescent Home, Chicago
Orthodox Jewish Home for the Aged, Chicago
Rest Haven Convalescent Home, Chicago
Fairfield Memorial Hospital, Fairfield
Abbott House, Highland Park
Union Hospital, West Frankfort

Indiana

Harrison County Hospital, Corydon
Union City Memorial Hospital, Union City

Iowa

Ida Grove Hospital, Ida Grove
Delaware County Memorial Hospital, Manchester

Kansas

Rawlins County Hospital, Atwood
Trinity Hospital, Dodge City
Hershner Hospital, Esbon
Edwards County Hospital, Kinsley
Kearny County Hospital, Lakin
Decatur County Hospital, Oberlin
Perkins Hospital, Spearville
Sterling Community Hospital, Sterling

Kentucky

Homeplace Clinic and Hospital, Ary
Nicholas County Hospital, Carlisle
Reynolds Clinic Hospital, Hartford

Louisiana

Beauregard Memorial Baptist Hospital, De Ridder
Gonzales Hospital, Gonzales
Homer Memorial Hospital, Homer
Frank D'Ingianni Medical Center, New Orleans

Maryland

Reeves Clinic Hospital, Western Port

Massachusetts

Fuller Memorial Sanitarium, South Attleboro

Michigan

St Joseph County Hospital and Infirmary, Centerville
Veterans Administration Hospital, Iron Mountain
Schoolcraft Memorial Hospital, Manistique
Veterans Administration Hospital, Saginaw

Minnesota

Arlington Municipal Hospital, Arlington
Baudette Community Hospital, Baudette
Dr R B Johnson Hospital, Lanesboro
Mount Sinai Hospital, Minneapolis
Wheaton Community Hospital, Wheaton

Mississippi

Hardy Wilson Memorial Hospital, Hazlehurst

Missouri

Skaggs Community Hospital, Branson
Jones Clinic Hospital, Sweet Springs

Montana

Lott Hospital, Livingston

Nebraska

Community Memorial Hospital, Crawford
Crete Municipal Hospital, Crete
Veterans Administration Hospital, Grand Island
Tilden Community Hospital, Tilden

Nevada

Clark County General Hospital, Las Vegas
Pershing County General Hospital, Lovelock

New Mexico

Lincoln County Hospital, Carrizozo
Lea County Community Hospital, Hobbs

New York

Edward John Noble Hospital, Alexandria Bay
Bethany Deaconess Hospital, Brooklyn
Beverly Nursing Home, Brooklyn
Sunset Nursing-Maternity Hospital, Constableville
Edward John Noble Hospital, Gouverneur
Manhasset Medical Center Hospital, Manhasset
Wickersham Hospital, New York
Greenmont on Hudson, Ossining
Rose Hospital, Rome

North Carolina

Stanly County Hospital, Albemarle
Gardner Webb College Community Health Center, Boiling Springs
Dunn Hospital, Dunn
Good Hope Hospital, Erwin
Washington County Hospital, Plymouth
Person County Memorial Hospital, Roxboro
Halifax County Clinic Hospital, Scotland Neck
Martin General Hospital, Williamston

North Dakota

Community Memorial Hospital, Hettinger
Veterans Administration Hospital, Minot

Ohio

College Hill Hospital, Dayton
Mount St Mary Hospital, Nelsonville
Fayette County Memorial Hospital, Washington Court House

Oklahoma

Cimarron County Hospital, Boise City
Physicians and Surgeons Hospital, Holdenville
LeFlore County Memorial Hospital, Poteau
Byrne Memorial Hospital, Tulsa

Oregon

Harney County Hospital, Burns

Pennsylvania

Veterans Administration Hospital, Altoona

Rhode Island

McAlpine Memorial Hospital, Providence

South Carolina

Saunders Memorial Hospital, Florence
Edgewood Sanitarium Foundation, Orangeburg
Cannon Memorial Hospital, Pickens

South Dakota

St Michaels Hospital, Tyndall

Tennessee

Welch Clinic Hospital, Brownsville
Donalson Hospital, Fayetteville

Texas

Walter Noble Hospital, Aransas Pass
Veterans Administration Hospital, Big Springs
Panola General Hospital, Carthage
Dr Guy A Tittle Children's Hospital, Dallas
Memorial Hospital, Fort Stockton
Mauritz Memorial Jackson County Hospital Ganado
Gladewater Municipal Hospital, Gladewater
Goliad County Hospital, Goliad
Ward Bruce Hospital, Greenville
Oak Place Sanitarium, Houston
Taylor Clinic Hospital, Lubbock
Veterans Administration Hospital, Marlin
Medical and Surgical Hospital, Pasadena
Richards Clinic and Hospital, Rockdale
Snyder Hospital Clinic, Snyder
Bexar County Tuberculosis Sanatorium, Southton
Tomball Hospital, Tomball
Wolfe City Community Hospital, Wolfe City
Tyler County Memorial Hospital, Woodville

Utah

Dragerton Hospital, Dragerton

Vermont

Kerbs Memorial Hospital, St Albans

Virginia

Wytheville Hospital, Wytheville

Washington

Coulee Dam Community Hospital, Coulee Dam
Veterans' Memorial Hospital, Odessa
Seneca Summit Surgery Hospital, Seattle
Yakima Valley Memorial Hospital, Yakima

Wisconsin

Ivanhoe Sanitarium, Milwaukee
Mercy Hospital, Milwaukee

Guam

Guam Memorial Hospital, Agana

Puerto Rico

Hospital de la Concepcion, San German

CURRENT MEDICAL LITERATURE

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

A.M.A. Arch. Indust. Hygiene & Occup. Med., Chicago

2:365-486 (Oct.) 1950

Pathological and Physiological Factors Involved in Treatment of Silicosis in Coal Miners. B. Gordon and H. L. Motley.—p. 365.
Railroad Retirement Board Disability Annuities. S. C. Werch.—p. 374.
Chemical Carcinogens. J. R. Heller Jr.—p. 390.
Chronic Exposures to Air Pollutants and Acute Infectious Respiratory Diseases. A. M. Baetjer.—p. 400.
Effect of Exposure to Vapors of Tetrabromoethane (Acetylene Tetrabromide): Experimental Study. M. G. Gray.—p. 407.
Comparative Acute and Subacute Toxicities of Allethrin and Pyrethrins. C. P. Carpenter, C. S. Weil, U. C. Pozzani and H. F. Smyth Jr. —p. 420.
Chronic Oral Toxicities of Mercuri-Phenyl and Mercuric Salts. O. G. Fitzhugh, A. A. Nelson, E. P. Laug and F. M. Kunze.—p. 433.
Collection and Analysis of Solids in Urban Atmospheres. J. Cholak, L. J. Schafer and R. F. Hoffer.—p. 443.
Local and Systemic Effects Following Application of Dilute Solutions of Phenol in Water and in Camphor-Liquid Petrolatum on the Skin of Animals. W. B. Deichmann, T. Miller and J. B. Roberts.—p. 454.

A. M. A. Archives of Internal Medicine, Chicago

86:491-648 (Oct.) 1950

Clinically the Myocardium. H. A. Christian.—p. 491.
*Aureomycin in Prevention of Bacteremia Following Tooth Extraction. O. Roth, A. L. Cavallaro, R. H. Parrott and R. Celentano.—p. 498.
Effects of Intravenous Injection of Typhoid Vaccine on Blood Leukocytes and Adrenal Cortex. M. D. Altschule, B. H. Parkhurst and E. Promisel.—p. 505.
Serum Esterified Fatty Acids with Fat Tolerance Tests in Diabetes Mellitus. E. F. Hirsch and L. Carbonaro.—p. 519.
*Adult Renal Osteitis Fibrosa with Metastatic Calcification and Hyperplasia of One Parathyroid Gland: Report of Case. E. A. Dreskin and T. A. Fox.—p. 533.
*Use of Cortisone and Adrenocorticotropic Hormone in Acute Disseminated Lupus Erythematosus. L. J. Soffer, M. F. Levitt and G. Baehr.—p. 558.
Gastroenterology: Review of Literature from July 1948 to July 1949. J. B. Kirsner, W. L. Palmer, W. E. Ricketts and others.—p. 595.

Aureomycin and Bacteremia in Tooth Extraction.—Roth and his co-workers show that dental manipulation for removal of a focus of infection in persons with damaged heart valves or congenital heart disease may cause bacteremia and precipitate subacute bacterial endocarditis. Sulfadiazine and sulfapyridine were employed prior to and following dental operations to prevent bacteremia, but these drugs were not always effective. Penicillin in oil has also been used. It reduces the occurrence of bacteremia substantially, but it occasionally causes allergic reactions. Aureomycin was used by the authors in patients who underwent tooth extraction. As the successful action of aureomycin in preventing bacteremia was yet unknown, patients with heart murmurs or patients with a history of rheumatic fever, chorea or any previously diagnosed congenital heart disease were excluded. Almost all the patients had evidence of dental infection. Every other patient received aureomycin; the alternate patients served as controls. A total of 2 Gm. of aureomycin divided in four doses was given on the day before the extraction, on the same day and on the day after. Of 25 patients who had not received any antibiotic, 14 had blood cultures positive for Streptococcus viridans immediately following tooth extraction. Among 25 patients who had received aureomycin, only one blood culture positive for Str. viridans was found. These results are important when it is realized that about 20 per cent of all cases of subacute bacterial endocarditis can be traced to recent dental manipulation. For this reason, before such an operation, every patient should be questioned and examined for valvular or congenital heart disease, and, if such a condition is found, should be given prophylactic treatment. Aureomycin is at present the drug of choice because it reduces the incidence of Str. viridans bacteremia, can be given orally, apparently does not produce drug-resistant organisms and has a relatively low toxicity.

Renal Osteitis Fibrosa.—According to Dreskin and Fox, long-standing renal disease with accompanying hyperplasia of the parathyroid glands and osteitis fibrosa is a rare syndrome, which only in recent years has been adequately described. They cite the history of a man aged 27, with a history of renal disease since childhood. He presented the clinical picture of renal insufficiency, metastatic calcifications, osteoporosis, pigmentation of the skin and a palpable mass near the lower pole of the thyroid on the left. The clinical features, except for this mass, were those of renal osteitis fibrosa generalisata. A biopsy specimen of the mass was taken, and histologic examination revealed hyperplasia of the parathyroid. The syndrome thus was complete. There was the added feature of deep reddish brown pigmentation of the skin. Following removal of the mass of hyperplastic parathyroid tissue, regression of the subcutaneous calcifications and healing of the bone lesions began despite an unchanged renal status. Laboratory studies before and after the operation showed a striking drop in serum calcium and a decided rise in alkaline phosphatase. A retrograde pyelogram showed megaloureter and hydronephrosis. Therapy included symptomatic measures, a high calcium and low phosphorus diet and administration of aluminum hydroxide. Calcium salts were given parenterally when tetanic manifestations developed. There was little change in the general status, although resorption of the subcutaneous calcium desposits occurred and evidences of bone healing appeared. The patient died in uremia after six months of observation. Autopsy confirmed the renal disease, hyperplasia of the remaining parathyroids and the healing lesions of osteitis fibrosa. The subcutaneous calcifications had completely disappeared. The authors stress that this case corresponds closely to the syndrome of chronic renal disease, decalcification of bone, parathyroid hyperplasia and metastatic calcification, as first described by Albright and his associates. This is the eighteenth such case reported in the literature. Pigmentation of the skin in this patient was striking and drew attention to the possibility of involvement of the adrenal glands. After the presence of severe renal impairment was established, it was decided that the pigmentation was on the basis of long-standing renal disease. At autopsy normal adrenal tissue was observed, lending confirmation to the latter clinical impression. Pigmentation of the skin, as in this case, occurred in more than 50 per cent of the previously reported cases of the syndrome.

Cortisone and ACTH in Disseminated Lupus Erythematosus.—Soffer and his associates investigated the influence of cortisone and of pituitary adrenocorticotropic hormone (ACTH) on 34 patients with a variety of illnesses. They report on 14 critically ill patients with exacerbations of acute disseminated lupus erythematosus. Six of the 14 patients were first treated with cortisone to establish a remission and were then treated with pituitary adrenocorticotropic hormone. Treatment in one patient was started with the pituitary hormone and later changed to cortisone. Five were treated exclusively with the pituitary hormone and two exclusively with cortisone. The initial dosage of cortisone was 150 to 200 mg. daily and that of pituitary adrenocorticotropic hormone 100 to 150 mg. The daily amount was divided into four doses. Defervescence, disappearance of the toxicity and subsidence of the joint pains were produced by both hormones. The major difference in the effects of the two agents was the time interval between the beginning of therapy and the clinical response. With cortisone, two to four days were required before the effects of therapy became evident. With the pituitary hormone, a fall in temperature to normal levels and subjective improvement were noted within 12 to 18 hours. This difference in the behavior of the two agents was also apparent after discontinuance of therapy. After the disease had been under control for several weeks, the daily dosage of both hormones was slightly reduced every few days until the minimal dosage level was established that maintained the patient in remission. This level can be more accurately gaged with the pituitary hormone because of the relatively prompt exacerbation that follows inadequate dosage. Although these hormones are capable of inducing clinical remissions, they do not effect a cure. They cause side effects. Postmortem examination of two patients who had been treated failed to show histologic changes that were different from those observed in patients with untreated lupus. The acute manifestations of the disease subsided in 11 patients. However, the characteristic lupus cells, the anemia, the thrombocytopenia and the abnormal renal findings persisted. In only one of this group could treatment temporarily be discontinued. The remaining 10 patients still require continuous treatment. Three patients died.

A. M. A. Archives of Otolaryngology, Chicago

52:513-670 (Oct.) 1950

*Evaluation of Operative Indications and Results in Fenestration Operation for Otosclerosis. E. H. Campbell.—p. 513.
Maginot Line of Otology: Dependence on Antibiotics in Suppurative Middle Ear Disease; Facts and Fancies. F. L. Lederer.—p. 533.
Antrochoanal Polyp. W. E. Heck, O. E. Hallberg and H. L. Williams.—p. 538.
N Butanol: Its Use in Control of Postoperative Pain in Otorhinolaryngological Surgery. B. Welt.—p. 549.
Malar Bone Fractures. M. M. Hipskind.—p. 565.
Nasal Cavity of Guinea Pig in Experimental Work. G. Kelemen. —p. 579.
Management of Nasal Allergy. S. Slepian.—p. 597.
Fixation of Vocal Cords in Acromegaly. J. K. Grotting and J. deJ. Pemberton.—p. 608.
Fenestration by Cold Fracture Method: Preliminary Report of Improved Technic. S. Rosen.—p. 618.
Surgical and Allied Diseases of Salivary Glands and Ducts. W. G. Abel III.—p. 622.
*Death Following Tonsillectomy. G. W. Taylor.—p. 642.

Results in Fenestration Operation.—Campbell evaluates the results obtained by the labyrinth fenestration operation for otosclerosis on the basis of three important factors, the degree of deafness before operation, the age of the patient and bone conduction before operation. One group composed of 16 patients with a mild preoperative loss of hearing—an average of 38 or less decibels—was compared with another group of 22 patients with a severe preoperative loss of hearing—an average of 62 or more decibels. The average improvement of hearing in the 16 mildly deaf patients was 13.2 decibels; that in the 22 severely deaf patients was 20.3 decibels. The amount of improvement obtained in the mildly deaf patients was much less than in the severely deaf patients. One group composed of 48 patients between the ages of 14 and 26 years was compared with another group of 32 patients aged 45 years or older. The average improvement in hearing in the 48 patients of the younger group was 16.7 decibels. This computation included 16 patients who were considered to have unsatisfactory results, inasmuch as they had less than 15 decibels of improvement. The average improvement in the remaining 32 successful cases was 23.5 decibels; in the 32 patients aged 45 or older, it was 16.46 decibels. This computation included nine patients who were considered to have unsatisfactory results. The average improvement in the remaining 23 successful cases was 22.1 decibels. It is significant that the hearing improvement after operation was practically the same in the two groups. A higher percentage of success was obtained in patients aged over 45 than in patients less than 25 years of age, but there was a higher percentage of patients in the younger group that obtained hearing to a practical and serviceable level.

A comparison of the postoperative results was made in two additional groups of patients, the members of the first group all having a preoperative bone conduction loss of 15 or less decibels at the 2048 frequency (essentially normal bone conduction), and those of the second group having a preoperative bone conduction loss of 30 or more decibels at the 2048 frequency. The average improvement at the 2048 frequency in the 45 patients with normal bone conduction (at the 2048 level) was 24.55 decibels and that of the 43 patients with bone conduction loss of 30 or more decibels was 21 decibels. Thus the improvement in hearing was almost as good in patients with poor bone conduction as it was in patients with normal preoperative bone conduction. Considerably reduced bone conduction at the 2048 frequency level does not necessarily indicate auditory nerve degeneration at that level and does not necessarily give a bad prognosis so far as the results of the fenestratioin operation are concerned.

Death Following Tonsillectomy.—Taylor performed a routine tonsillectomy and adenoidectomy on a Negro girl, aged 7 years. The patient was anesthetized with vinyl ether (vinethene®) and ether. The first indication of serious trouble was postoperative obstructive dyspnea due to large postnasal tampon and the heavy, thick tongue of the patient, although the degree of obstruction was not considered severe enough to warrant extra precautions. During the recovery period there was no one in constant attendance. When it was noted, five to 10 minutes after the patient had left the operating room, that respiration had ceased, almost another minute passed before the airway could be restored. Death occurred despite cardiac massage, artificial respiration and support of the circulatory system with transfusion and sympathomimetic stimulants. The basic cause of death probably was the long preliminary period of anoxia with resultant damage to the cerebral circulatory and respiratory centers. It is theoretically possible that the generalized lymphoid hyperplasia and chronic interstitial pneumonitis of this particular patient were significantly related to her death, in that her ability to recover either from the anoxia or from the strenuous resuscitative measures may have been considerably lower than normal. The effects of anoxia were too typical to consider the patient's own constitutional factors as anything of more than secondary importance. This case illustrates primarily that there should be adequate postoperative observation in order to prevent further similar episodes, especially when a postnasal pack has been inserted. The airway must be kept free and open by whatever means necessary. When accidents do occur, speed in reestablishing the airway and beginning cardiac massage is essential. While manual compression of the heart was practiced in this case, procaine hydrochloride was dropped onto the myocardium and was followed by cessation of fibrillation and resumption of cardiac action.

American Journal of Public Health, New York

40:1067-1218 (Sept.) 1950. Partial Index

Public Health Administration in Latin America. M. E. Bustamante. —*p. 1067.*
Public Health Practices in Germany Under U. S. Occupation (1945-1949): Brief Historical Review. W. R. deForest.—p. 1072.
Public Health Practices in Germany. W. W. Bauer.—p. 1077.
*Effective Control of Outbreak of Rabies in Memphis and Shelby County, Tennessee. E. S. Tierkel, L. M. Graves, H. G. Tuggle and S. L. Wadley.—p. 1084.
Study in Reduction of Absence from School of Children with Tinea Capitis R. W. Culbert, A. E. R. Robinson and M. N. Lerner. —p. 1089.
School Lunches: Their Nutritive Value and Relation to Health and Diet of Children. M. L. Hathaway, F. L. Meyer and S. F. Adelson. —p. 1096.
Nutrition and Dietary Habits of Aging Women. M. A. Ohlson, L. Jackson, J. Boek and others.—p. 1101.
New Horizons in Hospital Planning. M. D. Kogel.—p. 1118.
Voluntary Health Insurance on the National Scene: Program of Insurance Companies. M. D. Miller.—p. 1125.
Appraisal of Medical Care Programs. E. R. Weinerman.—p. 1129.

Control of Outbreak of Rabies.—According to Tierkel and his associates, the incidence of rabies had been at a substantial endemic level in the dog population of Memphis and Shelby counties for years. During the winter and early spring of 1948, the incidence began to reach epidemic proportions. By the end of March, cases were being reported at a rate of more than one a day. When the number of cases began to mount in December 1947, a strict dog quarantine was invoked that required that all dogs be confined or kept on a leash when out of doors. Stray dog control was adequate. On March 29, health department representatives met with the city and county commissioners, and it was recommended that an officially sponsored voluntary program be undertaken for canine vaccination. For the operation of dog vaccination clinics, the city was divided into three zones for the three days of operation, with 12 strategically located clinics held simultaneously in each zone. The rural county was similarly handled. Veterinarians supplied and administered the vaccine during the one week emergency program at a charge of $1 per dog. Standard phenolized veterinary vaccine was obtained from the usual commerical sources. Public education was effected through every available medium, the newspapers, radio, sound trucks, placards, mimeographed schedules of the clinics and the like. In the ensuing months the number of cases began to drop until the last case of animal rabies and the last human antirabic vaccine treatment were reported in July. Both city and county remained entirely free of rabies until March 10, 1949, when the first rabid dog since July 22, 1948, was picked up at the city limits. The results of this program stand as testimony of the importance of a well organized vaccination campaign.

Am. Practitioner & Digest of Treatment, Philadelphia

1:1009-1120 (Oct.) 1950

Combined Use of Picrotoxin and Amphetamine (Benzedrine) Sulfate in Barbiturate Intoxication. B. W. Billow.—p. 1009.
Headache Clinics: I. What is the Headache Problem? L. S. Blumenthal and M. Fuchs.—p. 1012.
Combined Antihistaminic-Antibiotic Therapy in Mixed Allergic and Infectious Respiratory Conditions. W. Finke.—p. 1017.
Psychotherapy in General Practice: Acute Anxiety States and Their Treatment. W. C. Hulse and L. Lowinger.—p. 1024.
Management of Comatose Patient. R. Myers and M. E. Meyers. —p. 1031.
Pernicious Anemia. E. Jones.—p. 1041.
Nutritional Heart Disease. F. W. S. Modern, D. W. Leik and S. Rapaport.—p. 1044.
Evaluation of Serum Albumin, Potassium and Sodium Salts and Other Methods of Treatment in Nephroses. H. R. Litchfield, R. Norton, A. H. Moss and I. J. Greenblatt.—p. 1050.
Allergy as Cause of Acute Torticollis. T. G. Randolph.—p. 1062.
Neuropsychiatric Indications for Therapeutic Abortion. D. I. Arbuse and J. Schechtman.—p. 1069.
Keratoderma Climactericum Treatment with Local Application of Estrogens. C. Block and I. Shapiro.—p. 1076.
Treatment of Shock in Acute Myocardial Infarction: Review. S. J. Weisman.—p. 1078.

Canadian J. of Research. Medical Sciences, Ottawa

28:177-256 (Oct.) 1950. Partial Index

Antibiotics Produced by Micrococci and Streptococci that Show Selective Inhibition Within the Genus Streptococcus. R. G. E. Murray and L. J. Loeb.—p. 177.
Chemical Analysis of Purified Influenza Virus A (PR8 Strain) Containing Radioactive Phosphorus. A. F. Graham.—p. 186.
*Effects of High Fat Diets and Cold Environment on the Ascorbic Acid Content of the Brown Adipose Tissue. E. Pagé and L. M. Babineau. —p. 196.
Antibiotic Produced by Micrococcus Epidermidis. L. J. Loeb, A. Moyer and R. G. E. Murray.—p. 212.
Use of Priscoline (2-Benzylimidazoline Hydrochloride) as a Test in Occlusive Arterial Disease. J. Doupe and R. M. Cherniack.—p. 222.
Haemoglobins of the Foetus and Newborn. F. D. White, G. E. Delory and L. G. Israels.—p. 231.
Role of Foetal Haemoglobins in Aetiology of Jaundice of the Newborn. G. E. Delory, L. G. Israels and F. D. White.—p. 238.

Ascorbic Acid in Adipose Tissue.—Pagé and Babineau point out that they had reported previously that prolonged exposure of rats to cold causes a considerable increase in the weight of the interscapular brown fat. This hypertrophy was associated with a rise in water and in nonfat dry matter content. It was suggested that brown adipose tissue has some physiological function different from that of ordinary depot fat and that its activity is greatly increased in cold-adapted animals. Other investigators established that ascorbic acid concentration of several tissues increases in animals adapted to cold. Pagé and Babineau measured the concentration of this vitamin in brown adipose tissue. They found that at room temperature the ascorbic acid content of the brown adipose tissue is doubled when rats are fed a high fat diet. In cold-adapted rats, the brown body is considerably hypertrophied and the ascorbic acid content is from four to eight times higher than at room temperature. The weight of the perirenal fat doubled in rats exposed to cold, with little or no change in total body weight. It is concluded that cold stimulates fat metabolism and that both ascorbic acid and the brown adipose tissue are involved in the process.

Gastroenterology, Baltimore

16:1-284 (Sept.) 1950. Partial Index

SYMPOSIUM ON DISEASES OF THE COLON

Pregnancy and Chronic Ulcerative Colitis. H. J. Tumen and E. M. Cohn.—p. 1.
*Effect of Antibacterial Agents on Intestinal Flora of Patients: Use of Aureomycin, Chloromycetin, Dihydrostreptomycin, Sulfasuxidine and Sulfathalidine. W. H. Dearing and F. R. Heilman.—p. 12.
*Chloromycetin Therapy of Chronic Ulcerative Colitis—One-Year Study. Z. T. Bercovitz.—p. 19.
Life Histories of Patients with Chronic Ulcerative Colitis: Review of 2,000 Cases. W. P. Sloan Jr., J. A. Bargen and R. P. Gage.—p. 25.
Metabolic Derangements in Chronic Ulcerative Colitis. E. L. Posey and J. A. Bargen.—p. 39.
Recurrence in Gastric Ulcer Under Medical Management. C. A. Flood and G. C. Henning.—p. 57.
*Potassium Deficiency in Gastrointestinal Diseases. F. H. Smith. —p. 73.
Further Comparative Studies on Ascites in Liver and Heart Disease. J. A. Layne, F. R. Scheimm and W. W. Hurst.—p. 91.
Quantitative Study of Gastric Secretory Response to Sham Feeding in Human Subject. H. D. Janowitz, F. Hollander, D. Orringer and others.—p. 104.
Effect of Thoracolumbar Sympathectomy and Splanchnicectomy on Antral Gastric Motility in Man. C. G. Morlock, N. C. Hightower Jr., C. F. Code and W. M. Craig.—p. 117.
Digestion and Absorption After Massive Resection of Small Intestine: II. Recovery of Absorption Function as Shown by Intestinal Absorption Tests in Two Patients and Consideration of Compensatory Mechanisms. T. L. Althausen, R. K. Doig, K. Uyeyama and S. Weiden.—p. 126.
Total Solids, Fat and Nitrogen in Feces: V. Study of Patients with Primary Parenchymatous Hepatic Disease. J. B. Gross, M. W. Comfort, E. E. Wollaeger and M. H. Power.—p. 140.
External Pancreatic Function in Primary Parenchymatous Hepatic Disease as Measured by Analysis of Duodenal Contents Before and After Stimulation with Secretin. J. B. Gross, M. W. Comfort, E. E. Wollaeger and M. H. Power.—p. 151.
Studies of Pancreatic Function: III. Use of Secretin Test in Diagnosis of Patients with Post-Cholecystectomy Syndrome. D. A. Dreiling. —p. 162.
Nocturnal Gastric Secretion in Normal and Duodenal Ulcer Patients on Various Forms of Therapy. H. C. Breuhaus, O. H. Akre and J. B. Eyerly.—p. 172.
Effect of Anion Exchange Resin on Healing Time of Duodenal Ulcer Craters. A. A. Hall and C. J. Hornisher.—p. 181.
Peripheral Manifestations of Visceral Carcinoma. M. P. Lipman and J. N. Tober.—p. 188.

Effect of Antibacterial Agents on Intestinal Flora.—Dearing and Heilman studied unselected, hospitalized patients who were to undergo surgical treatment for various intestinal lesions. The comparative study of the antibacterial effectiveness of aureomycin, chloramphenicol (chloromycetin®), dihydrostreptomycin, succinylsulfathiazole (sulfasuxidine®) and phthalylsulffathiazole (sulfathalidine®) on the intestinal bacterial flora in 194 patients indicated the superiority of aureomycin. The authors recommend the use of 750 mg. of aureomycin orally four times daily for three to three and a half days.

Chloramphenicol in Chronic Ulcerative Colitis.—Bercovitz reports bacteriologic studies on stool cultures and clinical observations on patients with ulcerative colitis treated with chloramphenicol (chloromycetin®). In the stool cultures, attention was given to the two major groups of organisms, Escherichia coli and streptococci. Three grams daily of chloramphenicol was found to be the most effective dosage. The stool cultures revealed marked inhibition of the growth of both E. coli and streptococci from the first to the fourteenth day of chloramphenicol therapy in 13 patients with chronic ulcerative colitis, eight normal persons and five patients in whom subtotal colectomy had been performed. In the latter group, the inhibition of bacterial growth was more pronounced in rectal mucus than in ileostomy feces. At the end of one month, 13 patients were greatly improved, three were moderately improved and the remaining eight showed no essential change. The author stresses that this is only a preliminary report. Chloramphenicol can be given repeatedly and for prolonged periods of time without evidence of toxic side reactions. Following the initial period of therapy, an interrupted schedule of treatment for relatively short periods of time is superior to constant and prolonged administration of the drug. Final clinical evaluation can be made only after a period of five years, when sufficient time has elapsed to account for spontaneous remissions.

Potassium Deficiency in Gastrointestinal Disease.—According to Smith, the body normally handles about 3 to 4 Gm. of potassium a day. During the treatment of patients with gastrointestinal disease, depletion of body potassium must be considered whenever the patient cannot take food orally, loses large quantities of gastrointestinal secretions or has a potassium diuresis as a result of intravenously administered dextrose and isotonic sodium chloride therapy or administratioin of pituitary adrenocorticotropic hormone (ACTH). Drowsiness, weakness, languor, chronic ileus with moderate distention, anorexia, nausea, edema and oliguria are significant when associated with disturbances in the electrolyte balance. In severe potassium deficiency, there may be a loss of the peripheral reflexes, dilatation of the heart and ectopic cardiac rhythms and hypotension. While an awareness of the conditions leading to potassium depletion is important, four laboratory determinations are helpful in establishing the diagnosis. These are the determination of the serum potassium and chloride levels and of the plasma carbon dioxide combining power and the electrocardiogram. Potassium deficiency may be corrected or prevented by the administration of potassium salts. Whenever possible, these salts should be given by the gastrointestinal route. Potassium deficiency rarely develops as long as food can be taken and retained. Even with a restricted diet, the use of orange juice, cereals and meat juice can supply an adequate daily intake of potassium. Potassium may also be supplied orally in tablet form as a solution of one or more potassium salts. One tablespoonful of Valentine's meat extract given four times a day will supply the equivalent of 5 to 6 Gm. of potassium chloride. When potassium salts are given parenterally, the blood reaching the heart should not contain more than 7 milliequivalents per liter. This concentration will not be exceeded when solutions containing 1 to 3 Gm. of potassium salts per liter are given at the rate of 8 to 12 cc. (120 to 180 drops) per minute. When toxic symptoms develop, the infusion of potassium salts should be discontinued immediately, administration of dextrose and isotonic sodium chloride solutions started and calcium gluconate given intravenously. The author presents four cases, two with signs of potassium deficiency, in which the correct diagnosis and treatment prevented a fatal outcome. The other two cases show that potassium deficiency can exist without great changes in the electrolyte balance and that the treatment of the deficiency can shorten convalescence.

Surgery, Gynecology and Obstetrics, Chicago

91:257-312 (Sept.) 1950

Vagus Nerve in Cardiac Arrest: Effect of Hypercapnia, Hypoxia and Asphyxia on Reflex Inhibition of Heart. H. E. Sloan.—p. 257.
Absorption Rates, Electrolyte and Volume Changes Following Subcutaneous and Intraperitoneal Injections of Solutions Containing Salt, Glucose, and Amino Acids. W. R. Webb, R. A. Lemmer and R. Elman.—p. 265.
Studies in Acute Cholecystitis: III. Pathological Process in Relation to Clinical Management of Disease; Fallacy of "Critical Period." F. P. Ross, J. D. Boggs and J. E. Dunphy.—p. 271.
Preliminary Report on Use of Bone Bank Bone. J. F. LeCocq, E. A. LeCocq and K. J. Anderson.—p. 277.
Selective Management of Megacolon in Infants and Children. C. M. Lee Jr., K. C. Bebb and J. R. Brown.—p. 281.
*New Concept of Venous Thrombosis. A. J. Quick.—p. 296.
Experimental Study of Healing in Common Bile Duct. T. C. Douglass, B. F. Lounsbury, W. W. Cutter and N. Wetzel.—p. 301.
Surgical Management of Duodenal Ulcer. R. Colp.—p. 306.
*Use of Plasma Volume Determination as Guide to Saline Administration in Surgical Patients. S. Aquilina and W. L. Butsch.—p. 311.
Cancer of Rectum: Five and 10 Year Follow-Up Study of Cases of Cancer Below Peritoneal Reflection. D. B. Pfeiffer and D. B. Miller.—p. 319.
Blood Volume and Blood Biochemical Studies in Patients Undergoing Radical Surgery. G. F. McInnes, O. Bodansky and A. Brunchwig. —p. 323.
*Modern Treatment of Chronic Osteomyelitis with Topical Detergent Antibiotic Therapy. E. J. Grace and V. Bryson.—p. 333.
Regional Enteritis: Clinical and Experimental Observations. S. Chess, G. Olander, C. B. Puestow and others.—p. 343.
Nylon Arthroplasty of Knee Joint in Chronic Arthritis. J. G. Kuhns and T. A. Potter.—p. 351.

New Concept of Venous Thrombosis.—Quick says that investigations carried out in his laboratory during the past 15 years have resulted in the formulation of a new theory of blood clotting. He considers the problem of venous thrombosis in terms of this new concept of the mechanism of coagulation. An injury to the vascular wall, even though minor, produces a rough surface to which platelets adhere. As these cells disintegrate, thrombin is produced, and the formation of a thrombus is initiated. This primary thrombus undergoes contraction and exudes a serum rich in nascent thrombin. If the circulation is sluggish, this serum will not be washed away promptly, but instead will cause the formation of a secondary thrombus on the original fibrin clot. As the new addition to the primary coagulum retracts, it gives rise to further growth of the thrombus. Clot retraction not only explains the propagation of the clot but also accounts for its nonattachment to the vessel wall except at the site of origin. Any means that diminishes or slows clot retraction should be valuable against thrombosis. The reduction of the number of circulating platelets is a theoretical means but is not feasible clinically. The reduction of the formation of thrombin is readily accomplished by heparin and by bishydroxycoumarin (dicumarol®). The correction of anemia is particularly important for the prevention of thrombosis, because the lower the cell volume the greater the retractility of the clot.

Plasma Volume and Sodium Chloride Administration.—In order to appraise the measurement of plasma volume as a guide in the administration of isotonic sodium chloride solution during the postoperative period, Aquilina and Butsch made comparative studies on two groups of 10 patients each who were subjected to partial gastrectomy for ulcer. They found that the patients who were given 11 Gm. of sodium chloride parenterally daily responded with an increased total red blood cell volume, plasma volume and amount of available protein. The patients who received no sodium chloride showed a decrease in these. The patients receiving sodium chloride postoperatively showed no ill effects. Increased plasma volume and cell volume with attendant increase in available protein evidently exert an important influence on the physiological processes of healing in the postoperative period.

Osteomyelitis Treated with Topical Detergent Antibiotic.—Grace and Bryson feel that sufficient data have now been accumulated to permit a review of the histories of 45 patients with chronic osteomyelitis treated by the technics described in earlier reports. The chronic osteomyelitis had existed for from two weeks to 51 years. Minimal surgical treatment and parenteral administration of penicillin was supplemented by local instillation of penicillin, dissolved in anionic detergent solutions, followed by primary closure of the wound. In one patient who, as the result of a compound fracture of tibia and fibula, had a persistent draining osteomyelitic sinus, an anionic detergent (tergitol,® sodium 2-methyl-7 ethyl undecyl-4 sulfate 1:1,000 aqueous solution) was used as a solvent for the penicillin (10,000 units to 1 cc.). This solution was puddled over the sinus tract after petrolatum gauze strips were placed about the opening in the form of a circular dam. Every four hours for 10 days, 5 cc. of the solution was placed in the sinus tract. The authors describe three other methods of applying antibiotics topically by means of surface active solvents. Important data, concerning bones involved, duration of osteomyelitis, causal organism, surgical and local treatments, are presented in tabular form for all 45 patients treated. The addition of a detergent to penicillin potentiates its action on staphylococci in vitro and may be instrumental in promoting contact between antibiotic and isolated bacteria in purulent or avascular areas. More than two thirds of the patients treated by the described methods had a complete arrest of the disease for periods that now extend to nearly five years of observation. Patients have been hospitalized for an average of only 10 days and are ambulatory at the termination of treatment. Thus this method offers a rapid, relatively simple therapeutic regimen and is a conservative alternative to mutilating surgery. Saucerization and other radical methods should be condemned as relics of the preantibiotic era.

Yale Journal of Biology and Medicine, New Haven

23:1-80 (Sept.) 1950

Some Endocrine Influences of Skeletal Growth and Differentiation. M. E. Simpton, C. Willet Asling and H. M. Evans.—p. 1.
Effect of Antihistaminics on Mice Hypersensitive to H. Pertussis Vaccine. L. A. Parfentjev.—p. 28.
Role of Epinephrine in Secretion of Adrenal Cortex. H. Gershberg, E. G. Fry, J. R. Brobeck and C. N. H. Long.—p. 32.
Mechanism of Control of Adrenocorticotropic Hormone. W. V. McDermott, E. G. Fry, J. R. Brobeck and C. N. H. Long.—p. 52.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

25:213-312 (Sept.) 1950

Syndrome Resembling Progeria: Review of Two Cases. C. A. Neill and M. M. Dingwall.—p. 213.
Progeria (Hutchinson-Gilford Syndrome): Report of Case and Review of Literature. J. Thomson and J. O. Forfar.—p. 224.
Case of Sporadic Congenital Goitre. A. L. D'Abreu and B. S. B. Wood.—p. 235.
Chylothorax in the Newborn. J. Sakula.—p. 240.
Red Cell and Plasma Volume in Newborn Infants. P. L. Mollison, N. Veall and M. Cutbush.—p. 242.
Technical Problems in Metabolic Investigations in Childhood. M. E. Edmunds.—p. 254.
Method of Collecting Total Excreta in Infants. J. O. Forfar and J. H. Prain.—p. 260.
Gonococcal Vulvovaginitis in Infants and Children: Study of 240 Cases. C. Mukherjce.—p. 262.
Osteomyelitis in the Newborn. J. Thomson and I. C. Lewis.—p. 273.
Staphylococcal Pyaemia with Pulmonary and Cold Subcutaneous Abscesses. H. M. T. Coles.—p. 280.
*Prognosis of Pneumonia in Infancy and Childhood. A. Holzel and B. Wolman.—p. 282.
Hepatitis Associated with Infantile Diarrhoea. J. Wainwright.—p. 286.
Excretion and Intake of B Vitamins in Newborn Infants. R. F. A. Dean and W. I. M. Holman.—p. 292.
Lead Poisoning in Infancy. N. S. Clark.—p. 297.
Review of Infantile Acrodynia ("Pink Disease"). D. Leys.—p. 302.

Prognosis of Pneumonia in Childhood.—Holzel and Wolman review observations on 214 infants and children who were treated for pneumonia from 1946 to 1948 inclusive in two Manchester children's hospitals. The diagnosis was confirmed radiologically or by necropsy. Twenty of the children died within the first 24 hours after hospitalization. Of the remaining 194 patients, 33 died (17 per cent). This relatively high mortality was accounted for by the large number of infants less than 6 months old; there were 28 deaths among 76 infants of this age group (36 per cent). There were only five fatalities among the 118 children (4 per cent) who were more than 6 months old. There was only one death among the 77 children who were more than a year old (1.3 per cent). Five deaths occurred among 18 (27 per cent) of the infants who were treated with sulfonamides, whereas among the 36 treated with sulfonamides plus penicillin there were 11 deaths (30 per cent). Thus, no benefit resulted from the added penicillin. Attempts to lower the general mortality from pneumonia must be directed toward the treatment during the first six months of life. No prognostic significance could be attributed to the total leukocyte count or to the percentage of polymorphonuclears.

British Medical Journal, London

2:739-794 (Sept. 30) 1950

Smoking and Carcinoma of Lung: Preliminary Report. R. Doll and A. B. Hill.—p. 739.
*Regime for Treatment of Severe and Acute Liver Disease. A. L. Latner.—p. 748.
Syndrome of Obstruction of Inferior Vena Cava in Childhood. H. Angelman, E. G. Hall and R. Spencer.—p. 752.
Some Unusual but Instructive Surgical Emergencies. H. D. Moore.—p. 756.
Familial Crisis in Acholuric Jaundice. F. G. Marson, M. J. Meynell and H. Tabbush.—p. 760.
Interstitial Emphysema in Measles. J. J. Linehan.—p. 762.

Treatment of Acute and Severe Liver Disease.—Latner says that patients with massive necrosis of the liver may linger for a number of days, whereas animals die almost immediately after hepatectomy. In some severe hepatic disorders several of the functions of the liver may remain apparently normal until death. The author developed what he terms the "intravenous liver regime," which employs two types of infusions. In the first infusion, 50 mg. of thiamin hydrochloride, 150 mg. of nicotinamide, 50 mg. of riboflavin and 0.5 Gm. of potassium chloride are added to each pint of 10 per cent dextrose in isotonic sodium chloride solution. The second infusion consists of plasma to which the vitamins alone have been added in the same concentrations as in the first infusion. A daily dosage of 1,000,000 units of penicillin is administered for 10 days. During each 24 hours, three separate pints of the first infusion are administered intravenously at six-hour intervals, and after a further six hours one pint of the second infusion is given. During this period, 300 mg. of tocopherol is administered intramuscularly in three divided doses. This treatment is continued until fluids can be administered by mouth: usually two or three days. The tocopherol should be administered by mouth as soon as possible. If there is an infection that does not respond to penicillin, a course of streptomycin can be given. The author used this treatment in two cases of infectious hepatitis with massive necrosis, two cases of massive necrosis of puerperium and one case with the hepatorenal syndrome developing after cholecystectomy. Only one death occurred in these five patients. Even the patient who died recovered from coma before death. Her death was due to a superadded infection and possibly to the fact that she did not receive the full regimen. The 80 per cent recovery rate in the five cases treated with the intravenous liver regimen contrasts strongly with the 100 per cent mortality in six patients who were treated with intravenously administered cystine. The intravenous liver regimen may also be used prophylactically after surgical operations on patients with severe liver impairment, who are notoriously bad surgical risks. The regimen has been successfully applied in two such cases.

2:795-848 (Oct. 7) 1950

Child Health and the Future. A. Moncrieff.—p. 795.
Management of Malpositions of Vertex. H. R. MacLennan.—p. 800.
*Treatment of Severe Hypertension with Hexamethonium Bromide. A. Campbell and E. Robertson.—p. 804.
Effect of Oral Hexamethonium Salts on Gastric Secretion. A. W. Kay and A. N. Smith.—p. 807.
Clinical Assessment of Rapidly Acting Agents in Rheumatoid Arthritis. C. E. Quin, R. M. Mason and J. Knowelden.—p. 810.
Five Cases of Puerperal Tetanus (One Associated with Eclampsia). D. B. Jelliffe, A. H. C. Walker and S. Matthews.—p. 814.
Seven Cases of Barium Carbonate Poisoning. G. Dean.—p. 817.

Treatment of Severe Hypertension.—Campbell and Robertson selected eight patients with severe hypertension and papilledema for treatment with hexamethonium bromide. A dose of 100 mg. administered intramuscularly every four hours was found to cause a progressive reduction in the blood pressure in all cases. Subsequently, oral treatment was found to be satisfactory. It produced a more constant fall of the blood pressure without the fluctuations encountered when the parenteral route was used. The drug was administered in solution formed by tablets of 0.5 Gm. dissolved in 20 cc. of water. On the first day of treatment, 0.25 Gm. should be given twice, followed by 0.25 Gm. three times daily for the next two days, then 0.5 Gm. three times daily for two days, the dosage being progressively increased, until by the tenth day 0.5 Gm. is being given four to six times a day (a daily total of 2 to 3 Gm.). The drug is more effective when given before meals. The substitution of normal therapeutic measures, other than rest in bed, by oral medication with hexamethonium bromide led to an immediate fall in the blood pressure to a level that could readily be maintained by a daily total dosage of 2 to 3 Gm. The most striking results were obtained in young patients with no previous history of renal disease with symptoms of short duration and rapid progression and with no arteriosclerosis. In the presence of long-standing hypertension without a previous history of renal disease the blood pressure could be reduced to within normal limits or to levels considered desirable. Headache was abolished, papilledema regressed and vision improved in every case. All the patients are now ambulatory. The drug was withdrawn in three patients, without an immediate rise in the blood pressure;

and, although one patient required further treatment, another still had a stable normal level of pressure after eight weeks. It seems likely that continuous administration may be unnecessary.

Clinical Science, London

9:71-258 (May 30) 1950. Partial Index

Postural Changes in Peripheral Blood Flow in Cases with Left Heart Failure. W. Brigden and E. P. Sharpey-Schafer.—p. 93.
Venous Pressure Management in Foot in Exercise as Aid to Investigation of Venous Disease in Leg. A. J. Walker and C. J. Longland. —p. 101.
*Comparative Values of Dextroamphetamine Sulphate, Dried Thyroid Gland and Placebo in Treatment of Obesity. D. A. W. Edwards and G. I. M. Swyer.—p. 115.
Relationship Between Horse Dandruff and Horse Serum Antigens in Asthma. J. R. Squire.—p. 127.
Action of Noradrenaline in Man and Its Relation to Phaeochromocytoma and Hypertension. A. J. Barnett, R. B. Blacket, A. E. Depoorter and others.—p. 151.
Effects of Heat and Cold on Distribution of Blood Within the Human Body: Radiological Investigation of Liver, Lungs and Heart. E. M. Glaser, F. R. Berridge and K. M. Prior.—p. 181.
Circulatory Effects of High Spinal Anaesthesia in Hypertensive and Control Subjects. L. G. C. Pugh and C. L. Wyndham.—p. 189.
Regulation of Sodium Excretion in Normal and Salt-Depleted Subjects. D. A. K. Black, R. Platt and S. W. Stanbury.—p. 205.

Treatment of Obesity.—Edwards and Swyer compared the effects of thyroid, dextroamphetamine sulfate and placebos on the weight loss of obese subjects on a 1,000 calorie diet. They found that dextroamphetamine sulfate (5 mg. three times a day) had a highly significant effect in increasing weight loss when used in conjunction with a 1,000 calorie diet. Thyroid (30 mg. three times a day) had no significant effect in similar circumstances. Dextroamphetamine sulfate and thyroid had no effects on each other. The effect of dextroamphetamine sulfate persisted over the four month period of treatment, and there was no significant difference in its effects in different months. The mean weight loss per month over the four month period without dextroamphetamine sulfate therapy was 5.77 pounds (2.6 Kg.). Dextroamphetamine sulfate increased this weight loss by 2.4 pounds (1.1 Kg.) per month.

Journal of Neurol., Neurosurg. & Psychiatry, London

13:159-242 (Aug.) 1950

Denervation Changes in Mammalian Striated Muscle. S. Sunderland and L. J. Ray.—p. 159.
Effects of Lesions in Cingular Gyrus and Adjacent Areas in Monkeys. P. Glees, J. Cole, C. W. M. Whitty and H. Cairns.—p. 178.
Normal Mentality Associated with Maldeveloped "Rhinencephalon." P. W. Nathan and M. C. Smith.—p. 191.
Thalamic Projection to Frontal Cortex in Man. T. McLardy.—p. 198.
Penetration of Particulate Matter from Cerebrospinal Fluid into Spinal Ganglia, Peripheral Nerves, and Perivascular Spaces of Central Nervous System. J. B. Brierley.—p. 203.
Syphilitic Optic Neuritis. G. S. Graveson.—p. 216.
Ocular Palsies with Nasal Sinusitis. H. Dimsdale and D. G. Phillips. —p. 225.
Neurotic Tendencies in Epilepsy. M. D. Eysenck.—p. 237.

Medical Journal of Australia, Sydney

2:277-312 (Aug. 19) 1950. Partial Index

Cancer of Cervix Uteri. Sydney Hospital Figures for 15, 10 and 5 Year Periods from 1929 to 1943. H. K. Porter, A. R. H. Duggan, S. D. Bray and R. S. Ford.—p. 277.
Treatment of Chronic Female Pelvic Sepsis by Short-Wave Diathermy. Review of 50 Cases. T. W. Burgess.—p. 285.
Development of Streptomycin Sensitivity in Pulmonary Tuberculosis. Analysis of Cases. J. A. Marsden and M. Renth.—p. 287.
Recent Advances in Management of Deafness in Children. G. R. Halloran.—p. 289.
Weber-Christian Syndrome. A. Frost.—p. 293.

2:313-352 (Aug. 26) 1950. Partial Index

Role of Tendon Transplantation in Restoration of Function Following Paralysis. H. Crawford.—p. 313.
Treatment of Fractures in the Region of Elbow Joint. W. R. Gayton. —p. 317.
Sacro-Iliac Tuberculous Arthritis. D. Parker.—p. 319.
Treatment of Slipped Femoral Epiphysis. E. F. West.—p. 324.

2:353-388 (Sept. 2) 1950. Partial Index

Medical Problems of Aging. S. Nelson.—p. 355.
Dystonia Musculorum Deformans, with Report of Case in a Child. D. C. Ryan.—p. 360.
Studies on Serological Diagnosis of Smallpox. W. A. Collier and J. K. Schönfeld.—p. 363.

New Zealand Medical Journal, Wellington

49:327-474 (Aug.) 1950. Partial Index

Diaphragmatic Hernia. N. F. C. Hill.—p. 349.
Some Common Neurological Causes of Pain in Upper Arm. M. A. Falconer.—p. 356.
Treatment of Carcinoma of Cardia and Lower Third of Oesophagus. J. Borrie.—p. 361.
Diagnostic Problems in Eczema. R. G. Park.—p. 394.
History of Acute Appendicitis. H. Karn.—p. 400.
Orthopaedic Treatment of Ankylosing Spondylitis. A. Gillies.—p. 412.
*Headache After Spinal Anaesthesia. S. R. Hunt.—p. 414.

Headache After Spinal Anesthesia.—Hunt says that the headache that often develops after spinal anesthesia may be more distressing than the operation itself. Various means have been used with some success to reduce the incidence of headaches, such as use of fine needles, lateral introduction of the bevel to produce a smaller hole and the adoption of a head-low position for 12 to 48 hours after puncture to lessen the seepage of spinal fluid. In spite of these measures, the incidence of spinal headache still remains at 20 to 30 per cent. In obstetrics, the application of a firm abdominal binder has practically abolished the condition. In analyzing his material, the author also found an amazingly low incidence in genitourinary cases. The only difference in routine care that could be found was that these patients had forced fluids. The conclusion was reached that preoperative overhydration of the patient by oral means might lead to hydremia (or provide ample reserves of fluid), which in turn would result in diminished absorption or increased production of cerebrospinal fluid. In a series of patients in which at least four pints of extra fluid—water or dextrose fruit drinks—were given from noon to night the day before the operation, the incidence of headache was low. This observation should be applicable also in diagnostic lumbar puncture.

Practitioner, London

165:209-318 (Sept.) 1950. Partial Index

Vital Statistics of Tuberculosis in England and Wales. P. Stocks. —p. 212.
Some Reflections on Mass Miniature Radiography. S. H. Graham. —p. 223.
Chemotherapy of Tuberculosis. J. Crofton.—p. 229.
Tuberculosis of Skin. D. I. Williams.—p. 235.
Tuberculosis of Genito-Urinary Tract. D. Band.—p. 245.
Present Status of Surgery in Pulmonary Tuberculosis. C. P. Thomas. —p. 257.
Tuberculin and Its Application. I. Ansell and M. A. Soltys.—p. 265.

Quarterly Journal of Medicine, Oxford

19:161-262 (July) 1950

Biochemical and Haematological Changes in Type 1 and Type 2 Nephritis. M. H. Roscoe.—p. 161.
Origin of Oedema in Heart Failure. J. Brod and Z. Fejfar.—p. 187.
Excretion of Chlorides in Patients with Heart Failure. Z. Fejfar and J. Brod.—p. 221.
Telangiectasis of Lungs with Two Case Reports of Hereditary Haemorrhagic Telangiectasia with Cyanosis. A. J. Brink.—p. 239.
Pulmonary Changes Due to Cardiac Disease with Special Reference to Haemosiderosis. A. C. Lendrum, L. D. W. Scott and S. D. S. Park. —p. 249.

Deutsche medizinische Wochenschrift, Stuttgart

75:1109-1168 (Sept. 1) 1950. Partial Index

Therapy of Goiter. P. Martini.—p. 1109.
Treatment of Carcinoma of Cervix Uteri: Operation or Irradiation. H. Martius.—p. 1113.
Chronic Idiopathic Tetany with Psoriasis (Hypoparathyroid Cretinism). O. Gsell.—p. 1117.
*Streptomycin in Treatment of Endocarditis Lenta. E. Wollheim and H. Kleinfelder.—p. 1121.
*Studies on Mode of Action of Cortisone (Compound E) and of Pituitary Adrenocorticotropic Hormone (ACTH). L. Heilmeyer, J. Frey, L. Weissbecker and others.—p. 1124.
Clinical Use of Pituitary Adrenocorticotropic Hormone (ACTH). G. Lohmeyer, H. Husselmann, H. W. Bansi and F. Fretwurst.—p. 1129.
Clinical and Experimental Investigations on Nature of Local Sensitivity to Tuberculin. W. Catel and W. Schmidt.—p. 1140.
*Intermittent, Malaria-Like Paroxysms of Fever in Carcinoma of Stomach. H. Hartmann.—p. 1153.

Streptomycin in Treatment of Endocarditis Lenta.—Wollheim and Kleinfelder state that the therapeutic efficacy of penicillin in endocarditis lenta was considerably less in German clinics (20 per cent cure rate) than had been expected on the basis of Anglo-American reports. They therefore employed other antibiotics. They administered a dose of 1 Gm. of Streptomycin daily until a total of from 30 to 90 Gm. had been administered. There were no damaging effects on the vestibular nerve with this dosage. Dihydrostreptomycin, combined with an antihistamine preparation, can be used if streptomycin should produce symptoms of cutaneous allergy. Streptomycin was given to 10 patients with endocarditis lenta, one of whom died at the beginning of treatment. Three of the nine patients were cured, and no relapse occurred in eight months of observation. The remaining six patients, most of whom had abacterial forms of endocarditis, showed no improvement with streptomycin therapy, whereas treatment with penicillin produced at least temporary improvement. The authors believe that after endocarditis lenta has been diagnosed, the patient should first be treated with large doses of penicillin, at least from 30,000,000 to 180,000,000 units. If this dose does not effect improvement, as ascertainable on the basis of temperature, splenic tumor, focal nephritis, anemia and particularly the sedimentation rate of the erythrocytes, then streptomycin should be resorted to at once. Penicillin treatment can be interrupted if in patients with high fever there is an exacerbation despite daily doses of 1,600,000 units and if the absence of any signs of improvement indicates that this therapy will probably be useless. In such cases streptomycin can still be helpful, as was proved in the three cases observed by the authors.

Mode of Action of Cortisone and ACTH.—Heilmeyer and his associates treated with cortisone a patient with pulmonary and intestinal tuberculosis. The treatment resulted in a decided decrease in eosinophils and erythrocyte sedimentation rate; the temperature was stabilized, and there was a reduction in the high excretion rate of ketosteroids. An artificially induced inflammation of the skin was also much reduced by the action of cortisone. This clearly demonstrates that the antirheumatic effect of cortisone is nonspecific. It suggests that cortisone influences a regulatory process that controls various functions. In a patient with pain and swelling in the joints of fingers and hands, the disease process became activated and involved the knee and shoulder joints. A therapeutic trial with a thiosemicarbazone derivative (amithiozone) resulted in a decrease in the sedimentation rate and slight diminution in swelling and pain. Severe nausea required interruption of this treatment. When cortisone was administered several days later, the sedimentation rate alternately rose and fell, until there was a gradual decrease, which continued several days after cortisone medication had ceased. The subjective changes paralleled the sedimentation rate. The excretion of 17-ketosteroids showed the same behavior as in the first case. The authors conclude from this that the action of cortisone on rheumatic disorders is not etiotropic. They used pituitary adrenocorticotropic hormone (ACTH) in the treatment of a patient with acute leukemia and in one with chronic lymphatic leukemia. They were able in these cases to corroborate the observations of American workers with regard to the regression of these conditions. The action of the pituitary hormone on the adrenal cortex was controlled by determination of the different corticoid fractions. The results supported Selye's opinion that pituitary adrenocorticotropic hormone activates chiefly the 11-oxycorticoids, among which cortisone, which influences the lymphatic organs, is the most important. The deoxycorticoid fraction, however, has a somewhat antagonistic effect on the lymphatic organs. This corroborates the dualism of the 11-oxycorticoids and the 11-deoxycorticoids.

Malaria-Like Fever in Gastric Cancer.—Reviewing the records of 271 patients with cancer of the stomach who were treated at the Heidelberg clinic between 1940 and 1948, Hartmann noticed that some had attacks of fever. The febrile temperature in 24 could be traced to intercurrent disease, but in 20 this was not possible. These 20 patients had intermittent, malaria-like paroxysms of fever, which in some patients recurred every three or five days, in others at intervals of two to six days. Fever may be one of the first symptoms of gastric cancer. The author illustrates this with a case history. This symptom has not received the attention it deserves. Cancer of the stomach should be considered in patients whose general condition is greatly impaired, who have anemia and an increased erythrocyte sedimentation rate and who have an unexplained fever, particularly if the fever is of the intermittent or paroxysmal type. The attacks of fever may be caused by anaphylaxis-like effect of the toxins resulting from the autolysis of the proteins in the carcinoma. The occurrence of fever in carcinoma suggests an unfavorable prognosis.

Gazeta Médica Portuguesa, Lisbon

3:523-616 (No. 3) 1950. Partial Index

*Exophthalmus from Thiouracil Therapy. G. Marañón.—p. 531.

Exophthalmos from Thiouracil Therapy.—Marañón directs attention to the occurrence of hypophysial exophthalmos and thyroid complications in thiouracil therapy of hyperthyroidism. In eight of 500 patients with hyperthyroidism treated with thiouracil or one of its derivatives, one or both of these complications occurred. Myxedema developed in four patients, in two of whom hypophysial exophthalmos became aggravated. Pronounced exophthalmos without myxedema and slight hypothyroidism developed in the other four patients. Hypophysial exophthalmos is more frequent, although more benign, after thiouracil therapy than after thyroidectomy. It can appear for the first time after thiouracil therapy, may become aggravated and progress, either alone or in association with myxedema. Treatment with thiouracil or any of its derivatives, even with small doses, is not entirely free from complications. Special care is advisable in giving thiouracil to patients with hyperthyroidism and with a tendency to edema.

Medicina Internazionale, Milan

48:149-188 (July-Aug.) 1950. Partial Index

*Incidence of Acute Yellow Atrophy of Liver During Last Epidemic Wave of Virus Hepatitis. (1939-1942). F. Boscardi.—p. 175.

Acute Yellow Atrophy of the Liver in Epidemics of Virus Hepatitis.—Boscardi reviews the world literature on epidemics of virus hepatitis in soldiers, from 1939 to 1948, and the records of a medical clinic in Rome concerning an epidemic in 238 civilians for the same period of time. The disease was considered benign up to 1945. Acute yellow atrophy of the liver was an extremely rare complication. From 1946 to 1948, the disease had become more acute and acute yellow atrophy of the liver much more frequent. The author believes that the virulence of the causal virus increases by the end of an epidemic of this disease, whereas immunity in the population decreases.

Nordisk Medicin, Stockholm

44:1379-1426 (Sept. 1) 1950. Partial Index

*Diagnosis of Intrahepatic and Extrahepatic Jaundice. Y. Edlund.—p. 1380.
Transplantation of Preserved Aortic Grafts in Dogs. T. Hiertonn and T. Borg.—p. 1387.
*Transitional Endometrium. V. Oram.—p. 1389.
Pneumococcus Types in Ulcus Serpens Corneae. Y. Barkman.—p. 1391.
Tuberculosis of Lymph Nodes with Leukemoid Reaction. B. Sørensen. p. 1394.

Diagnosis of Intrahepatic and Extrahepatic Jaundice.—Edlund asserts that the most important requirement for a correct diagnosis of intrahepatic and extrahepatic jaundice is a detailed case history. Laboratory tests serve as a supplement to the clinical observations. Determination of the bile pigment metabolism and quantitative determination of the bilirubin content in the serum are recommended. Pronounced increase in the bilirubin values points mostly to intrahepatic jaundice or possibly a malignant obstruction. Benign obstruction usually gives moderate hyperbilirubinemia and, significantly, intermittent jaundice. Simultaneous determination of the urobilin in urine and feces is useful. In intrahepatic jaundice there is a definite increase of urobilin in the urine, with normal or somewhat reduced urobilin in the feces. Malignant obstruction is usually associated with reduced urobilinogen content in the urine and acholic feces. In benign obstruction, in which there is usually partial obstruction of the common duct, there are generally no typical changes in urobilin excretion in urine and feces. The citric acid test and phosphatase determination in the urine, together with the thymol test, must be considered routine procedures. In intrahepatic jaundice the citric acid values are generally high, the phosphatase values normal and the results of the thymol test positive, while normal citric acid values, elevated phosphatase values and negative results of the thymol test point to extrahepatic jaundice. In jaundice of long standing (suspected cirrhosis), determination of the total serum albumin and the albumin-globulin quotient as well as the Takata-Ara test may be indicated, cirrhosis is as a rule marked by reduced albumin content and disturbance in the albumin-globulin quotient and positive Takata-Ara reaction Needle biopsy of the liver may be performed if the diagnosis continues uncertain, although the results are not always reliable As a last resort, laparotomy is permissible but even with careful preoperative treatment a simple laparotomy may have a fatal outcome

Transitional Endometrium—Oram says that the transitional phase between proliferation and secretion, which he calls transitional endometrium has been found at times when, according to simple computation the secretory phase would be expected Study of 224 cases of typical transitional endometrium indicates that a deficient cyclic development of the endometrium is probably due to disturbances in the hormonal balance Clinically, the picture is seen most often in the age groups 15-25 and 35-45 Most cases are characterized by long continued metrorrhagia, pronounced or weak, in some cases scanty hemorrhages occur at longer intervals In about half the cases the disorder occurs from six months to a year after childbirth and/or abortion, in the other half there is no evident cause In 75 per cent of the cases there is cystic degeneration of the ovaries or combined uterine fibroma and cystic degeneration The symptomatology otherwise consists of features that are probably dyshormonal Examination of 158 patients by the chromic acid-toluidine blue staining method showed that 80 to 90 per cent were in a cycle stage corresponding to the early or late proliferation stage In 70 per cent, there were minimum and pronounced disturbances in secretion, the most definite disturbances being in the patients with cystic degeneration of the ovaries, which is thought to emphasize the hormonal genesis Hormonal treatment of a number of patients with transitional endometrium with considerable disturbances in secretion resulted in improvement in about half

Prensa Médica Argentina, Buenos Aires

37:1299-1346 (June 16) 1950 **Partial Index**

*Influence of Streptomycin on Skin Reactivity to Tuberculin Experimental and Clinical Study R I Vaccarezza A Cetrangolo and R H Stupenengo.—p 1299

Streptomycin and Skin Reactivity to Tuberculin.—Vaccarezza and collaborators studied the skin reaction in guinea pigs inoculated with virulent tubercle bacilli and then treated with streptomycin The reactivity of the skin of guinea pigs treated with streptomycin greatly diminished as compared with that of the controls The earlier the administration of streptomycin after inoculation, the later the appearance of tuberculin sensitivity The reactivity of the skin to tuberculin returned to normal after discontinuation of streptomycin The reactivity of the skin to tuberculin was determined in 54 patients with pulmonary tuberculosis before, during and after streptomycin therapy The skin reactivity to tuberculin diminished in the course of streptomycin therapy in all cases except in two cases of miliary tuberculosis, in which it increased The changes in reactivity were independent of the course of pulmonary tuberculosis The reactivity returned to normal after discontinuation of the drug Thirty-two persons with a positive tuberculin skin reaction and 13 patients with pulmonary tuberculosis responded with greatly diminished skin reaction when the test was made with a mixture of tuberculin plus streptomycin Streptomycin in the blood as well as in vitro neutralizes the antigenic power of tuberculin

Presse Médicale, Paris

58:989 1004 (Sept 23) 1950

*Problem of Relapses in Typhoid and Paratyphoid Fever in Patients Treated with Chloramphenicol (Chloromycetin) A Laporte, D Fritel G Ricordeau and C Betourne —p 989
Penicillin Treatment of Adult Patients with Infectious Mononucleosis P Michon —p 990
Coronary Attack During Mitral Stenosis G Gelin J de Brux and G Harriague —p 992

Relapses in Typhoid and Paratyphoid Treated with Chloramphenicol—Laporte and co workers emphasize that although chloramphenicol (chloromycetin®) is effective in typhoid and paratyphoid, it does not prevent relapses They advance the concept that chloramphenicol does not easily reach the bacteria within the lymph nodes and does not sterilize them completely, because of a poor blood supply of certain lymphatic areas The survival of the bacteria within the lymph nodes causes the relapses To prevent these relapses, chloramphenicol therapy was combined in 23 cases of typhoid and in 15 cases of paratyphoid with vaccine therapy or pyretotherapy A total dose of 21 to 30 Gm of chloramphenicol was administered over 12 to 14 days to eight patients and in the course of eight to 10 days to 30 patients Of the 38 patients, 13 were given subcutaneous injections of T A B vaccine (against typhoid, paratyphoid A and paratyphoid B), 10 patients were given blood transfusions and 15 patients were given intravenous injections of antigonococcic vaccine Relapses occurred in only two of the 38 patients (5 per cent) instead of 15 to 20 per cent, as when chloramphenicol was given alone The therapeutic effect produced by any of the three methods employed exerts a general and a local effect by reaching the bacteria within the lymph nodes and thus reduces the incidence of relapses

Revista de la Asociación Méd. Argentina, Buenos Aires

64:203-324 (July 15-30) 1950 **Partial Index**

*Frequency of Tuberculosis of Spleen in Pulmonary Tuberculosis of Adults Study of 200 necropsies H Rodriguez Castells —p 300

Tuberculosis of Spleen in Pulmonary Tuberculosis—Rodriguez Castells reports on the frequency of tuberculosis in the spleen among 200 necropsies on patients who died from advanced pulmonary tuberculosis Tuberculosis of the spleen was present in 75 instances (37 5 per cent) It was of the miliary type in 73 cases and caseous in two There was a frequency of tuberculosis of the spleen of 100 per cent in miliary pulmonary tuberculosis, followed in order of frequency by chronic pulmonary caseous types and by acute pulmonary cavitation Tuberculous lesions were not present in the spleens of patients who died suddenly from hemoptysis or as the result of an operation The author believes that tuberculosis of the spleen is due to hematogenous spread of tuberculosis through the splenic artery Tuberculous bacillemia may occur at any stage of pulmonary tuberculosis However tuberculosis of the spleen develops only when tuberculous bacillemia occurs at a time when the organic defenses are diminished and the tissues are susceptible Acquired immunity does not prevent its development The type of reaction of the spleen depends on the condition of organic allergy when bacillemia occurs

Schweizerische medizinische Wochenschrift, Basel

80:1001-1020 (Sept 16) 1950 **Partial Index**

More Recent Antibiotics Aiding the Surgeon G Neff —p 1001
*Treatment of Bang's Disease with Aureomycin E Stoffel —p 1005
Insulin Myocardosis K Akert —p 1010

Aureomycin in Brucellosis—Stoffel administered aureomycin to 12 men and three women with brucellosis Eleven patients had an acute episode of fever while four had an afebrile interval Seven patients had severe organic changes, with osteomyelitis and spondylitis in four lung infiltrates in two strumitis in one and severe hepatopathy associated with cachexia and arthritis in one A total of 2 Gm of aureomycin was administered daily by mouth in doses of 0 5 Gm every six hours, with a total dose of 14 to 30 Gm Defervescence occurred in one to four days, followed by subjective and objective improvement There was a recurrence in the patient with hepatosplenomegaly arthritis, lung infiltrate and cachexia, but complete recovery resulted from three courses of 26 27 and 26 Gm of aureomycin respectively i e, from a total dose of 79 Gm Rapid healing of the osteomyelitic and spondylitic lesions and of strumitis was spectacular in other patients Eight patients responded well to aureomycin, while previous treatment with an aminopyrine preparation (causyth®), intravenously administered vaccine sulfonamide compounds or streptomycin had failed Side reactions consisted of gastrointestinal disturbances that did not require discontinuation of aureomycin and that subsided after treatment was terminated Pruritus and stomatitis occurred in one instance Follow-up of the patients for three to eight months showed no recurrences, except for the one patient mentioned before Aureomycin therapy is the method of choice for the treatment of brucellosis

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Recent Progress in Hormone Research: The Proceedings of the Laurentian Hormone Conference. Volume V. Edited by Gregory Pincus. Committee on Arrangements: R. W. Bates, and others. Cloth. $8.80. Pp. 537, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1950.

The proceedings of the annual Laurentian Hormone Conference have established themselves as one of the most authoritative sources of information on the experimental and clinical aspects of endocrinology available today. The report of the fifth conference proves to be no exception.

Touching on a borderline aspect of endocrinology, the paper by Tainter and Luduena on sympathetic hormonal transmission and the discussion by Gerard on the acetylcholine system in neural function will be of interest to physiologists and pharmacologists as well as to endocrinologists. Tainter's paper is largely a review of present concepts of sympathetic nerve transmission, and little new information is added. It is valuable, however, because it attempts to assemble all the known facts regarding the humoral mediation of nerve impulses in this system and to present a unified hypothesis to account for these facts. The discussions by Bacq, Bülbring and Raab are valuable additions to the paper. The paper by Gerard is an excellent companion to that of Tainter and Luduena. Four papers on ovarian physiology and function comprise the second portion of these proceedings. Reynolds advances a fresh viewpoint on ovarian physiology in his review of his painstaking investigations of the vasculature of the ovary and the anatomic and dynamic changes that take place with changes in functional state and in disease. Parkes presents an admirably written review of investigations on the androgenic activity of the ovary, which is a mine of information on species variability. This subject, unfortunately, is still in an unsettled state because of failure to isolate from the ovary substances having an androgenic effect. Paschkis and Rakoff give a logical and rather detailed review of the estrogenic hormones from the standpoint of their origin and pharmacologic and physiological effects. Finally, Bradbury, Brown and Gray discuss the maintenance of the corpus luteum from the standpoint of comparative physiology. The physiological actions of progesterone and the significance of pregnanediol excretion receive much attention.

At this conference, consideration of the pituitary gland revolved around the factors affecting its control rather than on the physiological actions of the pituitary hormones themselves. Greep and Jones discuss the effects of estrogens, androgens and adrenal hormones on pituitary function. Their work, which was largely quantitative, throws light on the question of what may be considered as "physiological" quantities of these hormones. Noble, Plunkett and Taylor present some preliminary studies on the modification of action of pituitary hormones by lithosperm. A regular feature of the Laurentian Hormone Conferences are the papers on steroid chemistry. An interesting paper by Grant and Beall details the methods used to isolate the estrogen conjugates which occur naturally and the preparation of synthetic sulfates of natural estrogens. A brief discussion of the synthesis of radioactive estrone sulfate is also given, and Engel's paper on the chemical estimation of steroid hormone metabolites marks a notable advance in this field. The problem of separation of steroids from mixtures has always been a troublesome one, but, by the application of the Craig countercurrent distribution technic, Engel offers a simple and reliable tool which may well prove to be a key to unlock the door to a better understanding of steroid metabolism.

A discussion of hormones and tumors is contained in two papers, one by Woolley on experimental adrenal cortex tumors, in which the genetic and endocrine factors are well discussed, and the other by Soffer and associates, dealing with clinical endocrinology, with a discussion of the virilizing syndrome in man. The congenital, prepuberal and adult types of adrenocortical hyperfunction are discussed, and the relation of pituitary function to adrenal hyperplasia is elucidated by metabolic studies. Certain aspects of hormonal mechanisms are outlined in two papers. Sutherland discusses the hyperglycemic factor of the pancreas and its relation to epinephrine in glycogenolysis. The evidence appears to indicate that the hyperglycemic factor is a protein and may be a second pancreatic hormone. It acts like epinephrine in that it accelerates the breakdown of glycogen in the liver. The most intriguing and perhaps the most fundamental work in endocrine mechanisms was presented by Meyer and McShan, who reviewed their investigations on hormone-enzyme reactions. Two aspects of their work were presented: the changes in tissue enzyme in normal and hormone-deficient animals and the in vitro effect of estrogens on oxidative enzymes. The changes in enzyme concentrations are shown to occur as a result both of changing hormone levels and of nonhormonal factors. This complicates the interpretation of results, but, by correlation of changes in organ function, tissue enzymes and hormonal levels, it appears that some hormones may act on enzyme systems to effect shifts of metabolism to alternative pathways with consequent shifts in morphological and functional patterns.

As always, the discussions reproduced at the end of each paper add greatly to the formal presentation. The arrangement and editing of these proceedings is a testimony to the perspicacity of the committee on arrangements of the conference and especially to the editor of the proceedings, Dr. Pincus.

Our Rejected Children. By Albert Deutsch. Cloth. $3. Pp. 292. Little, Brown and Company, 34 Beacon St., Boston 6, 1950.

This is an arresting and sobering book. Documented as it is, there is no reason to doubt the existence of the deplorable and shocking conditions which exist in the so-called training schools or reform schools maintained by the various states for the so-called care of delinquent children. The author charges that institutional maintenance and the external appearance of buildings and grounds are emphasized above education for the unfortunate inmates. He states that in many instances the dairy herd is treated better than are the children. Food is often poor and sometimes repulsive. Cruel treatment, in the nature of both physical violence and psychological torment, are common practice even in institutions where these things are officially prohibited.. The author considers the worst aspect of these institutions to be the deadly, destructive monotony to which the inmates are subjected, giving them a sense of hopelessness and frustration. The examples of laziness, drunkenness, cruelty and immorality which are constantly set before the inmates by low grade supervisory personnel can, in the author's judgment, have no influence except to make criminals, not only of delinquents, but also of nondelinquents who are indiscriminately placed with delinquents for custodial care.

The author is careful to designate the good as well as the bad, though unfortunately the latter predominates. He gives due credit to persons who, despite the system, endeavor to do the best they can for their unfortunate charges. He lays the principal blame on the state legislatures which fail to provide adequate appropriations and thus perpetuate the system whereby institutional personnel can be recruited only from untrained and often degenerate personnel. Low salaries, lack of incentive and political insecurity do not attract the right type of person. The author further believes that most institutions are too large; he presents 12 constructive suggestions for improving conditions.

In the second part of the book he deals with courts, jails and detention homes in their relation to child "crime" and delinquency, and here he paints an even darker picture, if possible, than with regard to the training schools He discounts the idea that comic books, radio, television or crime literature, in and of themselves, are causes of juvenile misbehavior, but he does offer and ably defend the thesis that our entire culture exalts the criminal and condones crime We make heroes of successful criminals, and mystery thrillers involving murder, robbery and sex constitute our most popular escape diversion We consider it smart rather than criminal to cheat the income tax, evade rationing regulations, put over slick deals and violate regulations made for the common good, such as those for speed and traffic control and fire prevention While he does not believe that the parents of a bad child are necessarily more than partially responsible for delinquency, he does indict our entire social fabric, and he makes a compelling and thought-provoking job of it While this is a shocking book, it is not merely a job of muckraking It is a serious, factual and eminently fair presentation of the author's observations and experiences, together with constructive suggestions for improvement Thoughtful citizens, especially physicians, will find in it much food for thought and strong stimulus toward action

Essentials of Medicine. The Basis of Nursing Care By Charles Phillips Emerson Jr, A B, M D, Associate Professor of Medicine, Boston University School of Medicine, Boston, and Jane Elizabeth Taylor, R N, B S, M ED Sixteenth edition Cloth $4 Pp 815, with 191 illustrations J B Lippincott Company 227 231 S 6th St, Philadelphia 5, Aldine House, 10-13 Bedford St, London, W C 2, 2083 Guy St, Montreal, 1950

This book has always been a rather popular textbook, particularly for nurses In this edition the authors have made certain revisions, which include the expansion of medical knowledge and some recent therapeutic developments In spite of the fact that it is declared to be a compendium of the practice of internal medicine, it could not be regarded as a good textbook on this subject. This is an attempt to put a system of medicine within the covers of a book, and this obviously is most difficult to do.

The organization of the book is good The material is presented in 12 units The first unit consists of an introduction to nursing care, followed by sections on the respiratory, circulatory, digestive and renal systems One unit is devoted to the integumentary system Then follow units on allergic conditions, the endocrine glands and metabolism and the nervous, musculoskeletal and reproductive systems The last unit is devoted to communicable diseases The book is well illustrated, and the illustrations are reasonably accurate, but many could stand extensive revisions and deletions

Those parts of the text which deal with the use of antibiotic and chemotherapeutic agents in the treatment of communicable diseases contain a number of inaccurate statements One glaring example is the recommendation of administration of aureomycin by the intramuscular route, a practice which should not be recommended to either nurses or physicians Each unit contains selected references, which in general are good This book compares favorably with any similar book designed for the same purpose

Inventions Patents and Monopoly By Peter Meinhardt With a Foreword by James Mould K C Second edition Cloth 30s Pp 320 Stevens & Sons Ltd 119 120 Chancery Lane London, W C 2, 1950

This edition of this interesting study of British patent law and practice was necessitated by the numerous and important changes in the law introduced by the Patents Act, 1949, the Monopolies and Restrictive Practices Act, 1948, and the Development of Inventions Act, 1948 The book serves as an excellent, up to-date reference on the subject The author discusses the many details of patent law and practice, with numerous comparisons of the British law with that of other countries, particularly the United States The monopoly referred to in the title relates to the British attempt to curtail the abuses of patent monopoly Unlike our law, English law has set up safeguards to deal with the wrongful suppression of patented inventions, the restriction of the use of inventions of food and medicines, the charging of excessive prices for patented articles and the wrongful refusal to grant licenses on reasonable terms The author has succeeded in writing a readable book, eliminating intricate or moot legal points It should prove useful to inventors and businessmen as well as lawyers

Regional Dermatologic Diagnosis A Practical System of Dermatology for the Non-Specialist By Ervin Epstein M D Consultant in Dermatology and Syphilology to the Oakland Area Veterans Hospital Oakland, California Cloth $6 Pp 328, with 148 illustrations Lea & Febiger, 600 S Washington Sq, Philadelphia 6, 1950

The author of this modest volume is a well qualified dermatologist He has written this book to prepare a regional guide of diseases of the skin for the general practitioner and medical student It is not intended as a reference book for dermatologists

The author believes that a practical system of dermatology for the general practitioner must be based on a single, easily recognized, reasonably constant characteristic In this case, one of the most constant characteristics of a skin disease, namely the location of the eruption, has been employed as the foundation stone for accurate diagnosis The book is arranged to take advantage of this feature Each chapter is divided into sections headed, e g, Inflammations, Granulomas, Tumors and Atrophies Under each heading, the conditions are arranged roughly in the order of frequency of occurrence The rarities are dismissed with brief mention at or near the end of each section The subject matter is covered in comparatively simple fashion, as is essential in a book of this type written expressly for the general practitioner Therapy is mentioned briefly under the more important dermatoses At the end of each chapter, a table lists the more important diseases and the important features of each There are three appendixes which briefly describe the common locations of the most frequently encountered skin diseases, the principles of local therapy and the more important cutaneous manifestations of systemic disease Unfortunately, the author has given no bibliography and no reference sources. These would have been of considerable value to the practitioner desiring further information on specific subjects The book is well printed on a good quality of paper, abundantly illustrated with good photographs and substantially bound The author's style is simple yet adequate Discussions of controversial topics are brief, and the opinions presented are primarily those of the writer The book should be of some value to the physician in general practice

Diagnosis & Treatment of Tumors of the Head and Neck (Not Including the Central Nervous System) By Grant E Ward M D, D Sc, F A C S, and James W Hendrick M D M S Cloth $15 Pp 832, with 646 illustrations The Williams & Wilkins Company, Mount Royal and Guilford Aves, Baltimore 2 1950

Drs Ward and Hendrick have drawn on their vast and rich experience with malignancies to present a most valuable book to the profession They have not hesitated to enlist the aid of anatomists, otolaryngologists, ophthalmologists, radiologists, plastic surgeons and dental surgeons, where the particular knowledge of these specialists would enhance the value of this book The material is presented in a clear and lucid manner, and is well illustrated by numerous, excellent diagrams and photographs Interestingly presented from an important standpoint is the relation between embryology and clinical findings There is no verbosity in the text There are a number of photomicrographs that are not as clear as they might be It is quite evident from the extensive bibliography that a thorough survey was made of the literature The material is exceptionally well arranged and the lesions of the various anatomic parts are discussed in chapters under their own heading In the section on tumors and diseases of the salivary glands, sialography is rather well discussed with reference to the parotid gland, but no mention is made of the submandibular gland, nor are there any illustrations of it It would be well to include this in future editions. There is a succinct and excellent discussion on the use of nitrogen mustard therapy of lymphomas.

If a defect results from removal of a benign tumor of the mandible, it is the consensus that reconstruction should begin in the operating room at the time of the primary surgery rather than after a minimum period of two weeks as suggested in the book.

There are many excellent photographs of detailed procedures and appliances. The description of both the operations and the appliances would be enhanced by diagrams. The style makes for interesting reading. One is impressed with the fact that the authors speak with convictions arising from a tremendous clinical experience and thorough analysis of symptoms and observations and various methods of treatment. This book can well be used as a textbook or reference book and should be of great value to anyone interested in tumors of the head and neck. It is highly recommended.

Tratado de patología y clínica médicas. Dirigido por el Prof. Agustín Pedro-Pons, catedrático de patología y clínica médicas en la Universidad de Barcelona. Tomo VI: Enfermedades infecciosas, intoxicaciones, enfermedades profesionales y por agentes físicos. Por Agustín Pedro-Pons, Pedro Farreras Valentí, profesor adjunto de patología y clínica médicas en la Universidad de Barcelona, y Juan Surós Forns, jefe de Clínica de la cátedra de patología médica del Prof. A. Pedro-Pons, Barcelona. Paper. Pp. 975, with 364 illustrations. Salvat Editores, S. A., 41-49 Calle de Mallorca, Barcelona, Spain; Calle Lavalle Nº. 371, Buenos Aires, 1950.

This volume concerns infectious diseases, intoxication, occupational diseases and diseases caused by physical agents. The language is clear and concise. This is a large volume printed in rather small type. The field covered is extensive, and the description of the diseases is methodical and detailed. The first part of the book contains general concepts on infections, parasitosis, contagion, diagnosis, epidemiology, prophylaxis and treatment of infections. The author discusses diseases produced by bacteria, viruses, rickettsias, Bartonella, spirochetes, protozoa, helminths, arthropoda and mushrooms. The second part contains a discussion of intoxication, occupational diseases and diseases caused by physical agents. This is one of the most thorough treatments of this subject. It should be of great value to those Americans with a knowledge of Spanish, particularly to those interested in the so-called tropical diseases. The book contains numerous illustrations in color and in black and white, with many charts and graphs that simplify the discussions. There is no bibliography.

Handbook of Physiology & Biochemistry. Originally "Kirkes" and Later "Halliburton's." By R. J. S. McDowall, M.D., D.Sc., Professor of Physiology, University of London, King's College. Fortieth (centenary) edition. Cloth. $7. Pp. 767, with 315 illustrations. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5; John Murray, 50a Albemarle St., London W.1, 1950.

It is indeed rare to find a textbook with a new edition 100 years after its initial publication. This book first appeared in 1848 under the authorship of William Senhouse Kirkes, of St. Bartholomew's Hospital, London, England. It became known as "Kirkes' Physiology" and underwent 13 revisions until, in 1896, Professor Halliburton undertook the task of revision, and 17 editions appeared between that time and 1928. During this period, the book was known as "Halliburton's Physiology." In 1928, Professor McDowall undertook the task of revision, and in 1937 "Biochemistry" was added to the title. The present edition constitutes the 40th revision since 1848.

This book is designed primarily for medical students. Although "Biochemistry" appears in the title, it is not an adequate textbook on this subject. Rather, it is a textbook on physiology written from a biochemical viewpoint. Thus, mechanical or physical concepts in physiology are subordinated to the chemical aspects. The introduction to the subject in the opening chapter lacks completeness. Physiology is the basis of medicine, and for this reason it is important that definitions and basic concepts be presented in detail. In this book, the student is rushed too rapidly into the details of the subject, and he will find himself among the trees before he has had a chance to look at the forest.

Another defect, common to almost all textbooks on physiology, is the omission of any adequate discussion of physiological psychology. A chapter on this subject would help orient the student for later studies in psychiatry. On the credit side, the discussions of metabolism, secretion and digestion are good. There is an excellent chapter on physiological optics, a subject often slighted in physiology textbooks.

This book is not outstanding. It lacks the meticulous attention to detail and the evenness of those editions of Howell's physiology published during the latter years of Howell's life, but it can be recommended as one of the better current textbooks on physiology.

Practical Gynecology. By Walter J. Reich, M.D., F.A.C.S., F.I.C.S., Attending Gynecologist, Cook County Hospital, Chicago, and Mitchell J. Nechtow, M.D., Associate Attending Gynecologist, Cook County Hospital, Chicago. Cloth. $10. Pp. 449, with 187 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1950.

In line with the increased attention now being focused on the mind in all branches of medicine, the opening chapter of this book concerns psychosomatics in gynecology. From this the authors proceed with chapters which deal with history taking, physical examination, laboratory tests, endocrinology, infections, neoplasms, infertility and other subjects. In the preface, the authors say they fervently hope the Papanicolaou smear test will become as routine as the Wassermann test but that this utopia is a long way off. In the chapter dealing with dysmenorrhea, the authors advocate many proprietary drugs, some simple but others as strong as 100 mg. of meperidine (demerol®) hydrochloride. Emphasis is placed by the authors and the publishers on the fact that this book deals with office gynecology, but diagnostic curettage for carcinoma should be a hospital procedure, because the scraping must be a thorough one. Likewise perineotomy and repair for vaginismus must be done in a hospital, as judged by the authors' illustrations. Few gynecologists now use instrumental dilators to overcome vaginismus as illustrated and described. Likewise, not many gynecologists favor preovulatory dilatation of the cervical canal with the hope of mechanically enlarging cervical openings or breaking up cicatrization. Contrary to the view of the authors, semen should not be deposited in the uterine cavity in cases of artificial insemination even when the husband's semen is used because of the danger of infection. The illustration shows the deposition of semen in the cervical canal, and, while this is proper in cases in which the husband's semen is used, it will suffice to deposit a donor's semen against the external os of the cervix. In spite of the few minor criticisms, the book should be helpful. It is well written and practical because it is based on the authors' extensive experience. The illustrations are beautiful and instructive, although a few photographs are indistinct. The paper is sturdy, and the book is well bound.

Massage reflektorischer Zonen im Bindegewebe bei rheumatischen und inneren Erkrankenungen. Von Dr. Hede Leube, Leiterin der Krankengymnastikschule der Universität Freiburg i. Br., und Elisabeth Dicke. Mit einem Geleitwort von Prof. Dr. med. W. Kohlrausch. Fourth edition. Boards. 4.50 marks. Pp. 84, with 27 illustrations. Gustav Fischer, Villengang 2, Jena 15b, 1950.

The authors of this book are convinced that massage has especially favorable effects in certain rheumatic and internal diseases if it is concentrated on certain areas of the trunk, designated as reflexogenic areas. According to the foreword, the distinctive feature of this work is the discovery that primary disease in a given viscus is accompanied by palpable changes in the skin, the tela subcutanea and the interstitial connective tissues. The areas of correspondence are determined by known neuroanatomic relations. They have a diagnostic value, and, whenever it has been possible (by using the technics described in this book) to restore the normal degree of turgor or tension in the superficial area, the trouble in the corresponding visceral area has vanished.

These claims are rationalized by the authors in terms of undeniable facts of anatomy; the claims are limited, moreover, to *functional* disorders that can be explained in terms of the involuntary musculature of blood vessels and sphincters. For this reason, it must be admitted that the authors have at least made their idea sound plausible. They have also presented it succinctly and readably. For instance, the section on liver and bile passages (pages 75 to 78) is a concrete application of the general idea to the particular case. It should, therefore, not be difficult to obtain well controlled clinical evidence for or against the effectiveness of the recommended procedures in a series of carefully made diagnoses, say, of biliary dyskinesia. It is to be hoped that such evidence will soon be supplied.

Medical Entomology, with Special Reference to the Health and Well-Being of Man and Animals. By William B. Herms, Sc.D. Fourth edition. Based on the Book Known as Medical and Veterinary Entomology. Cloth. $9. Pp. 613, with 191 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1950.

This edition of this widely employed textbook of entomology lives up to its deserved reputation as a systematic presentation of that branch of applied biology. The shortening of the main title to "Medical Entomology" from "Medical and Veterinary Entomology" used in earlier editions should not be construed as a lessening in consideration of the animal aspects of the science. Indeed, the author continues to emphasize the importance of the relation of all forms of life to insect vectórs in the transmission of disease, so that essential, fundamental concepts are provided for the student. The book retains the original scheme of presenting details of certain experiments to illustrate the methods of investigation that can be employed to expand knowledge of the subject.

The new edition has been brought as nearly up to date as possible without altering the general plan of the contents. The free use of quotations and previously collated data is partly cumulative from previous editions and provides an abundance of historical information. The scope of the book, however, is that of a manual rather than an exhaustive treatise. The typography is clear without excessive use of boldface, and the illustrations, many diagrammatic, are adequately labeled. Each section is followed by a list of references suited more for collateral reading than for documentation. The index is unusually thorough and accurate. A typographic error, "typhiod," occurs in a citation on page 19, but on the whole the proofreading appears to have been carefully done. Teachers and field workers alike will appreciate this authoritative guide to the practical application of entomology.

Proceedings First National Conference on Cardiovascular Diseases 1950. Published by the American Heart Association in Cooperation with the National Heart Institute, U. S. Public Health Service, Federal Security Agency. Paper. $1.75. Pp. 259. The American Heart Association, 1775 Broadway, New York 19, 1950.

On Jan. 18-20, 1950, the first national conference on cardiovascular diseases was held in Washington, D. C., under the auspices of the American Heart Association and the National Heart Institute of the Public Health Service. This conference brought together 196 distinguished professional and lay experts to discuss what is known now about cardiovascular disease and how this knowledge can be applied to prevention and cure. Except for the addresses of several speakers on the opening day of the conference, the book is largely made up of reports of the various sections into which the conference was divided. These reports, covering all phases of the cardiac problem from medical research to sociology and biostatistics, form stimulating reading. The reports are generally concise and to the point and cover (frequently in outline form) what is known about the subject, deficiencies in knowledge and what measures should be taken to close the gaps in knowledge.

Kinesiology. By Laurence E. Morehouse, Ph.D., Associate Professor of Physical Education, The University of Southern California, Los Angeles, and John M. Cooper, Ed.D., Associate Professor of Physical Education, The University of Southern California, Los Angeles. Cloth. $4.50. Pp. 435, with 97 illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1950.

This volume, intended primarily for the physical educator, confines itself chiefly to consideration of the skilful use of the musculature and lever systems of the body in physical activity. Since the book is concerned with the activity of normal, healthy persons, pathological conditions are touched on only incidentally. After a preliminary discussion of structure and function, including the mechanics of movement, major emphasis is given to the application, of kinesiological principles to sports and games and the fundamental activities basic to them, such as walking, running, jumping, falling, lifting and carrying, hanging and swinging, throwing, striking and catching. Special sections on static and dynamic posture, swimming and indicative and deceptive movements in sports provide insight into the somewhat unique kinesiological problems involved. The text is unusual in its practical and functional approach, which has been achieved without loss of scientific accuracy. Liberal use of example and illustration make for a clear presentation. One feels that today's student will have a happier time and a clearer understanding of kinesiology than his earlier counterpart, who was concerned mainly with memorization of muscle origins, insertions and actions, with little or no reference to practical application.

Oral and Facial Cancer. By Bernard G. Sarnat, M.D., F.A.C.S., Professor and Head of the Department of Oral and Maxillofacial Surgery, College of Dentistry, University of Illinois, Chicago, and Isaac Schour, D.D.S., Ph.D., Sc.D., Coordinator of Cancer Instruction, Professor and Head of the Department of Histology and Associate Dean in Charge of Postgraduate Studies, University of Illinois College of Dentistry, Chicago. With a Foreword by Andrew C. Ivy, Ph.D., M.D., D.Sc., Vice-President in Charge of Chicago Professional Colleges, University of Illinois, Chicago. Cloth. $6. Pp. 300, with 120 illustrations. The Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1950.

A scientific book should be either a textbook, a reference book or a manual. The first 43 pages of this book deal with generalities that are interesting. However, in a highly specialized book such as the title indicates, it must be assumed that the person using this book for reference has a basic understanding of the cancer problem. For the student's use it is not detailed enough. The impression is given that squamous cell carcinoma of the skin is predominantly produced by the actinic rays of the sun. Carcinoma of the various intraoral regions is treated superficially and wholly inadequately. The case history reports are incomplete and lack necessary details. The greater part of the various regional chapters (which in themselves are much too brief) concerns anatomy rather than clinical considerations. There is also a separate chapter on anatomy and physiology of the face and oral cavity. This would be better suited to a book or treatise on surgery of the face and mouth, rather than to a highly specialized book such as this. The physiology of bone fractures does not belong in a book of this nature. Leukemia and Hodgkin's disease are primarily blood dyscrasias and not neoplasms, as the authors lead one to believe. Several sets of questions are included for students. The arrangement of the material in this book is too haphazard and confusing; for example, the chapter on oral and facial examination is beyond the middle of the book, after the regional clinical considerations have been discussed. The statement is made that "about 40 per cent of cancers of the head and neck and 60 per cent of cancers of the gingivae are first seen by the dentist." There is no reference regarding statistics to prove this statement. The appendix is a repetition in summary of the text. The format of the book makes it very readable. The excellent photographs and diagrams add interest; however, this book is neither a reference book, a textbook nor a manual.

The Pathology of Internal Diseases. By William Boyd, M.D., M.R.C.P., F.R.C.P., Professor of Pathology and Bacteriology in the University of Toronto, Toronto. Fifth edition. Cloth. $11. Pp. 866, with 402 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1950.

Few authors possess the gift for presentation of medical problems in a lucid, understandable manner. Dr. Boyd has succeeded in presenting this information to the reader in a manner that is understandable and at the same time interesting. This is of particular importance when such information is written for the medical student or the busy practitioner.

Changes in this edition include the addition of a section on diseases of bones and joints and a discussion of the pertinent factors in diffuse collagen diseases, congenital hemolytic disease and some newer aspects in the field of hematology. Some chapters, as diseases of the liver, heart disease and pulmonary diseases, have been rewritten in whole or in part, to bring the information up to date.

Emphasis is placed in this book on the correlation of the physiological alterations leading to pathological changes and the relation of these changes to the mechanism of symptoms. To comprehend better these clinical changes, emphasis on the mechanics of organ alterations is important. This has value from the standpoint of the patient and the quest for a diagnosis and treatment of disease and from the standpoint of teaching either students or physicians. Other subjects, as Loeffler's pneumonia, lupus erythematosus cells, myeloid metaplasia and cortisone in rheumatoid arthritis enhance the value of this book.

Diseases involving various organs are arranged in different chapters, and the discussion includes the essential clinical features, prognosis, and pathology, which is reviewed in some detail, with a discussion on the relation of symptoms to lesions. The book is profusely illustrated with examples of the important pathological processes discussed, and the type and format are good. Dr. Boyd's studies in the field of pathology are known to the medical profession, and this most recent edition of his book is a valuable contribution to the field of medicine and pathology that should be in the possession of students and practicing physicians.

Food Poisoning: Its Nature, History and Causation; Measures for Its Prevention and Control. By Elliot B. Dewberry, M.B.E. Foreword by Gerald R. Leighton, O.B.E., M.D., D.Sc. In three parts with appendixes. Third edition. Cloth. 17s.6d. Pp. 318, with 64 illustrations. Leonard Hill Limited, 17 Stratford Place, London, W.1, 1950.

The book is loosely organized. Much of the difficulty is a result of using the term "bacterial food poisoning" both in its general sense and as a synonym for Salmonella food poisoning. A consideration of the various types of bacterial food poisoning occupies three quarters of the book. The remainder is devoted to poisonous metallic salts, poisonous plants, edible and poisonous fungi, poisonous fish and shellfish and food allergy. The final chapter gives brief directions for culturing and identifying the bacteria responsible for food poisoning. Throughout the book there is extensive direct quotation from the original literature, but recent advances are sometimes missing. In the chapter on poisonous metallic salts, no mention is made of cadmium, and phenothiazine is listed as a promising substitute for arsenical insecticides, without reference to any of the numerous more successful compounds developed later. It seems unlikely that the book will find much use in this country.

A German-English Dictionary for Chemists. By Austin M. Patterson. Third edition. Cloth. $5. Pp. 541. John Wiley & Sons, Inc., 440 4th Ave., New York 16, 1950.

During the 15 years since the publication of the last edition of this indispensable tool, tremendous technological advances have occurred. These changes are reflected in extensive additions to scientific terminology. In contrast to the 1935 edition's 42,000 entries, the 1950 edition is stated to embrace some 59,000 German terms of interest to chemists and chemical engineers. The terms are drawn from the literature of chemistry, physics, biology, geology, chemical technology, electronics, pharmacy and warfare. Like the earlier edition, this one has three especially interesting features: obsolete and antiquated chemical terms (so marked) occurring in the older chemical literature and often in current pharmaceutical writing, common general words which the user otherwise would have to look up in standard dictionaries and an introduction pointing out the principles of German chemical nomenclature.

Personality: A Systematic Theoretical and Factual Study. By Raymond B. Cattell, Research Professor, University of Illinois, Urbana. Cloth. $5.50. Pp. 689, with 54 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1950.

This volume presents a discussion of recent theoretical and factual material concerning description and measurement of personality. Interaction of heredity and environment are described, and an attempt is made through synthesis of knowledge of clinical and experimental psychology to explain the dynamic processes of adjustment and learning. Special emphasis is placed on tying in sociologic and anthropological data for presentation of the study of personality on a more objective basis. Of particular interest are the last three chapters, in which the author considers the impact of all psychic factors in the process of development that contribute to life stages; of personality from conception through adolescence, maturity and old age. The volume is primarily designed for teaching purposes, and the author offers suggestions for scholastic use of the book on several graded levels.

The Breast: Structure, Function, Disease. Edited by F. D. Saner, M.B., B.Ch., F.R.C.S., Surgeon, Royal Northern Hospital, London. Cloth. $8.50. Pp. 316, with 193 illustrations. The Williams and Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1950.

In the preparation of this book, 15 persons collaborated. Their object was to present a general picture of the structure, function and disease of the breast and to include suggestions for treatment. The subjects covered are as follows: The structure of the breast, the function of the breast, abnormalities of structure and function, examination and diagnosis, mammary dysplasia: chronic mastitis, benign tumors, chronic infective lesions, the nipple and the skin, cancer: general considerations, invasion of the internal mammary lymphatic chain, treatment, radiotherapy, the plastic contribution to breast surgery, appendix (statistical data on breast cancer).

The authors of this book are to be congratulated on having compiled so much valuable data in such a small book. In spite of the fact that there were so many collaborators, the book is written in a smooth style; the illustrations are numerous; clear and instructive, and many are in color. Numerous American authorities are quoted throughout the book. At the end of each chapter is a well selected bibliography. The paper is sturdy, and the binding is good. The book is highly recommended to all physicians.

Nutrition & Diet Therapy. By Fairfax T. Proudfit, Director of Dietary Department, John Gaston Hospital, Memphis, Tenn., and Corinne Hogden Robinson, Lecturer in Nutrition and Dietetics, Temple University School of Medicine, Philadelphia. Tenth edition. Cloth. $4. Pp. 950, with 69 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1950.

The fact that this book has had so many editions is proof of its great usefulness as a textbook for students in nursing. It also, however, continues to be a helpful reference book for physicians and others who are concerned with the feeding of the sick. Recognition by the medical profession of the importance of diet therapy has increased greatly in the last few years. This is mainly because of the rapid progress being made in the science of nutrition and its practical application. The authors have brought the subject up to date in a brief, concise, well organized and well written text, documented satisfactorily and accompanied by excellently arranged tables giving data on food values, including those for sodium and potassium and for cholesterol, which has recently attracted much attention. Particularly helpful are the sections devoted to the newer knowledge in the field of proteins and amino acids, to mineral metabolism and to the vitamins. The authors are well qualified for this task, and their book can be highly recommended. Every general practitioner, every surgeon and others in the medical profession ought to have available for ready reference a volume such as this.

Surgery of the Eye: Injuries. By Alston Callahan, B.A., M.S., M.D., Professor of Ophthalmology, Medical College of Alabama, Birmingham. Cloth. $11.50. Pp. 217, with 333 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This book deals with the principles of treatment of injuries of the eye in a thorough and authoritative manner. The author formerly had wide experience with traumatic surgery of the eye as chief of the eye section of the Northington General Hospital in Tuscaloosa, Ala. The book is well written, beautifully illustrated and is a valuable reference.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

BUBBLES IN CHRISTMAS TREE LIGHTS

To the Editor:—What is the nature of the solution in the Christmas tree lights that produce bubbles when lit? I had 2 small patients who broke the bulbs and either attempted to or did drink the contents. Gastric lavage was performed on both of them as a precaution and ill effects were not noted, but for future reference I would like to know whether or not the liquid is poisonous. J. S. Desporte, M.D., Bogalusa, La.

Answer.—Somewhat the same fluid that appears in the bubble type of Christmas tree lights may be found in certain advertising signs and in the birdlike novelty, the head of which automatically moves up and down. In the lights the fluid may be ethyl ether or methyl chloride, but other closely related chemicals can be used. In the novelty birds methyl chloride is almost certain to be found.

Evaporation of methyl chloride is likely to be so rapid that the fluid would largely disappear before imbibition. Methyl chloride, chiefly as a vapor, is decidedly toxic and has caused deaths when it leaked from refrigerator systems. In the manufacture of novelties exposed workers are known to have been injured. Ethyl ether is less toxic, and the degree of prospective damage is reflected in its wide use as an anesthetic. The properties of only a few chemicals lend themselves to the use under discussion, but methylene chloride, if it can be substituted, should be given preference since it involves neither major fire nor toxic damage.

UNDERDEVELOPED BREASTS

To the Editor:—A woman aged 35, has underdeveloped breasts. She says that her friends get injections that develop theirs. This woman is normal. Her menses are normal except for dysmenorrhea. M.D., New York.

Answer.—It is probable that underdeveloped breasts in an adult woman with normal and regular menses are due to an end organ defect rather than a deficiency of estrogenic hormone. However, this patient could be treated with estrogens, parenterally, orally or topically (inunction of estrogen in an oily or ointment base over the mammary region). There is little advantage in this latter method. The dosage should be comparable to that administered to women for the menopause syndrome. There is the possibility of interruption of the regularity of the menstrual cycle. This tendency would be minimized by administration of the estrogen beginning on the third day of menstruation and interruption about one week before the expected onset of the next cycle. If results are not distinctly encouraging after three months of such treatment, it is not worth continuing indefinitely.

CARBON MONOXIDE POISONING

To the Editor:—How long does the methemoglobin persist in the blood in carbon monoxide poisoning, and is this influenced by the patient's being in an oxygen tent for some time?

G. L. Lester, M.D., Chautauqua, N. Y.

Answer.—Carbon monoxide poisoning does not produce methemoglobin. This compound is oxidized hemoglobin—not to be confused with oxygenated hemoglobin—and is a physically stable substance most often encountered in toxicity due to such drugs as nitrites, aniline, acetanilide, antipyrine and methylene blue. Carbon monoxide combines with hemoglobin in the same unstable manner as oxygen, producing carboxyhemoglobin; its toxicity is dependent on the ability to compete with oxygen for the available hemoglobin. Since the affinity of hemoglobin for carbon monoxide is 200 to 300 times greater than for oxygen, relatively large amounts of carboxyhemoglobin may be found rapidly, although the alveolar concentration of carbon monoxide is small. The rate of removal of carbon monoxide depends, therefore, on the blood concentration when treatment is begun and on the rate and concentration of oxygen inhaled; usually it is removed in a matter of hours. Oxygen therapy, of course, increases the rate of this exchange.

WITHDRAWAL SYMPTOMS IN DRUG ADDICTION

To the Editor:—I have a patient, a narcotic addict, to whom it has been necessary to give rather large amounts of dihydromorphinone hydrochloride for about six months. Pain from Buerger's disease necessitated the use of the drug. I feel that the response I have obtained with various drugs used in the treatment of peripheral vascular disease has been such that my patient should not require much, if any, for pain. In my opinion there is no psychic factor, as the patient does not know the drug he has been given. Yet withdrawal symptoms appear when the drug is withdrawn. Are there any drugs of recent development or any recently developed methods that will help in withdrawal in this case?

Edwin E. Lyda, M.D., San Bernardino, Calif.

Answer.—The use of the term "treatment" is interpreted as treatment of physical dependence. There is no qualitative difference between physical dependence and withdrawal manifestations with dihydromorphinone and those observed with any other opiate. Parenthetically, since all the dangerous opiates are vasoconstrictors, it might be advisable in treating peripheral vascular disease to use a drug that has vasodilator action, e. g., meperidine hydrochloride. Since the introduction of methadone hydrochloride, withdrawal of narcotic drugs has been greatly simplified. Methadone is substituted for the narcotic being used, the proportion being 1 mg. of methadone hydrochloride to 4 mg. of morphine sulfate. Since methadone hydrochloride acts somewhat more slowly than does an opiate alkaloid, some overlap may be necessary, with an occasional "booster" dose of dihydromorphinone or morphine sulfate until the transfer is complete and the patient is physically dependent solely on methadone. After this point is reached, methadone therapy can be discontinued rather rapidly. In the laboratory, complete and sudden discontinuance results in a mild abstinence syndrome. In private practice, seven to 10 days should be ample.

There is always some risk in any withdrawal, and the physician should be willing and available to give an injection of some rapidly acting opiate if serious signs develop. These are vomiting, dilatation of the pupils and a steady rise in temperature. (As long as the pupils are decidedly contracted, one can feel fairly safe.) As was recognized in the query, this has nothing to do with emotional factors preceding or resulting from the administration of an opiate. Often a patient is receiving all the drug he needs but wants more. Here one must depend on signs, not symptoms. It is well to assume that a rise in temperature is an early manifestation of abstinence, not emotional or "faked." It is better to allow oneself to be deceived occasionally rather than have a fatality. Fatalities can occur with remarkable suddenness, if the physician is not willing to admit that some of the signs mentioned are those of abstinence. One warning is necessary: If the patient has also hypertensive cardiovascular disease, complete abstinence probably cannot be obtained. At about the equivalent of ⅛ grain (8 mg.) of morphine sulfate every four hours, or even higher, serious signs of abstinence appear. If the withdrawal is persisted in, decompensation and death are highly probable. The only recourse is a quick-acting opiate, or its equivalent, given promptly.

TREATMENT OF PARKINSONISM

To the Editor:—Is vitamin B_{12} of any value in Parkinson's disease (idiopathic type)? What is the present status of mephenesin (tolserol®) for this condition? If it is used, what dosages are recommended and how long may it be continued? Is crude liver of any value? M.D., Wisconsin.

Answer.—Parkinson's disease should be treated with a combination of (1) medicinal preparations, (2) physical therapy and (3) psychotherapy. The use of each of these will depend on the stage of the disease and the ability of the practitioner. Since parkinsonism is a chronic degenerative disease of the nervous system which usually extends over many years, the patient should be encouraged to maintain some form of activity as long as possible, without undue fatigue. These patients do much better if they are able to lead a relatively quiet existence, avoiding situations causing excessive emotional excitement. The nature of the illness should be carefully explained to each patient, with emphasis on its chronic nature and the fact that the disease does not ordinarily affect mental capability. Every effort should be made to avoid the use of alarming statements.

The prescription of one or more of the various antispasmodics is an individual matter, and satisfactory results are frequently obtained only after a period of trial. At the present time trihexyphenidyl would appear to give satisfactory results to the majority of patients with parkinsonism, without causing intolerable side reactions in any but a small number. The belladonna alkaloids, including hyoscine, stramonium and atropine, alone or in combination, also give satisfactory results in many cases. Physical therapy is a useful adjuvant where muscle soreness, pain, cramp or rigidity is prominent; relief often occurs with the use of heat and massage. Graded exercises also are helpful. Vitamin B_{12} and liver are of no value in parkinsonism. The benefit attributed to the use of mephenesin when this drug was first introduced has not been observed in more extensive studies.

RHEUMATOID ARTHRITIS

To the Editor:—A woman, aged 33, has had rheumatoid arthritis for 10 years. In 1948 she had a hysterectomy; at that time diabetes mellitus was discovered. The diabetes appears to be well controlled with 10 units of protamine zinc insulin and 13 units of regular insulin, although the patient has recently lost 12 pounds (5.4 Kg.). An attempt at treatment of the rheumatoid arthritis was made 10 years ago with a course of vaccines (details unknown). She now shows the typical deformities of the hand joints, one shoulder and one knee, with muscular atrophy. She is greatly handicapped for daily activities and walks with a limp. She weighs 90 pounds (41 Kg.) and is 5 feet 4 inches (163 cm.) tall. Clinically there does not seem to be any activity in the affected joints. The blood sedimentation rate is not yet known. The rheumatoid process has been slowly progressive. Is chrysotherapy any more hazardous in a diabetic than in a normal person? Pituitary adrenocorticotropic hormone (ACTH) is not available to me. Would desoxycorticosterone and intravenous administration of vitamin C be preferable to gold injections? The patient will be hospitalized throughout the period of treatment.

E. G. Wermuth, M.D., London, Ontario, Canada.

ANSWER.—Well controlled diabetes does not constitute a contraindication to gold therapy. If toxic manifestations ensue, then the presence of diabetes may make their handling more difficult and thus increase somewhat the total risk. Recent experience with the use of desoxycorticosterone acetate and vitamin C in the therapy of rheumatoid arthritis has failed to establish the value of this method of treatment. It, therefore, cannot be recommended, although, if tried, no adverse effect on the diabetes would be expected. Of the two methods, chrysotherapy would seem preferable, in a dosage not to exceed 50 mg. weekly of gold sodium thiomalate. A total of 1 Gm. should be given, followed, in case of improvement, by maintenance injections of 50 mg. every three to four weeks. In any case, general treatment, in the form of increased rest, acetylsalicylic acid to the point of relief of pain and stiffness and physical therapy, especially heat and active exercises, should not be neglected.

BIRTH CONTROL AND CHRONIC CYSTIC MASTITIS

To the Editor:—A patient of 27 years of age has chronic cystic mastitis of both breasts, more severe on the right side. Is she risking future neoplastic involvement of the cervix by using a diaphragm pessary?

Joseph Burns, M.D., Miami Beach, Fla.

ANSWER.—The use of a diaphragm pessary would indirectly influence the chronic cystic mastitis from which your patient suffers. This would come about from the continued ovarian stimulation to the breast without pregnancy intervening to permit normal physiological function. Carcinoma of the breast is more frequent in women who have had children but did not suckle them and married women who have prevented pregnancy. Inasmuch as the chronic cystic mastitis is evidence of endocrine dysfunction in this patient, the use of any instrument which might act as an irritant would be dangerous, because chronic irritation in a patient predisposed to malignant disease may hasten the neoplastic changes.

PHENOLSULFONPHTHALEIN SODIUM TEST

To the Editor:—Will the addition of an excess amount of sodium hydroxide have any adverse effect in the phenolsulfonphthalein sodium test of renal function? The more alkali added, the greater the precipitate in the urine. Does this precipitate carry down any pigment with it? I perform the test with the Dunning colorimeter.

M.D., Pennsylvania.

ANSWER.—Any reasonable excess of alkali likely to be used to develop the purple color will not produce an error in the test, as phenolsulfonphthalein is highly soluble in dilute sodium hydroxide.

NEVUS FLAMMEUS

To the Editor:—Is there any therapy—other than with solid carbon dioxide, electrodesiccation or a Kromayer lamp—available now for nevus flammeus? Radium cannot be used.

M.D., Massachusetts.

ANSWER.—None of the three methods mentioned is recommended for the treatment of nevus flammeus. Such destructive measures usually leave a mottled appearance which still constitutes a cosmetic defect. Grenz rays are said to produce satisfactory improvement, particularly when they are used in infancy, but experience with grenz rays has not been extensive. The introduction of pigment into the nevus by tattoo has been recommended by Conway and Doktor (*Surg., Gynec. & Obst.* 84:866 [April] 1947), but experience with this method has been limited.

HYPOGONADISM

To the Editor:—I would appreciate any suggestions or course of treatment for hypogenitalism in a 28 year old patient.

M.D., New York.

ANSWER.—The type of treatment depends on the type of hypogonadism. If it is primary and the result of some defect in the testes or associated with bilateral undescended testes, androgen therapy should be employed, with testosterone propionate in a dose of 25.0 mg. three times a week by intramuscular injection. If it is secondary to hypopituitarism, chorionic gonadotropin should be administered in a dose of 500.0 I. U. three times a week by intramuscular injection. If any other glandular deficiency is present in addition to hypogonadism, such as hypothyroidism, it should be corrected by appropriate therapy.

LOW DIASTOLIC PRESSURE IN YOUNG PATIENTS

To the Editor:—The reply to the two queries relative to "zero" diastolic blood pressure in normal persons (*J. A. M. A.* **144**:512 [Oct. 7] 1950) warrants further elaboration. The syndrome as initially described by me (Transient "O" Diastolic Brachial Pressure [Indirect], Associated with Normal or Elevated Popliteal Pressure, Tachycardia and Nervous Tension, *Am. Heart J.* **30**:381 [Oct.] 1945) consisted of several principal components: (1) a brachial diastolic pressure recorded as O by the indirect method, i. e., by the ordinary sphygmomanometer, (2) its transient character (five minutes to 1½ hours in the cases described), (3) a normal or elevated blood pressure in the lower extremities, (4) tachycardia and (5) nervous tension. Thirty-five of the 38 patients described were between the ages of 18 and 30 years, with the major age distribution below 25.

The syndrome is benign. While the exact mechanisms involved in its genesis are not clear, existing evidence would suggest the operation of intense psychoneurogenic influences and consequent transitory autonomic nervous system imbalance producing rather pronounced vasodilatation in the muscle bed of the upper extremities (and probably other regions) and initiating certain compensatory reflex mechanisms that maintain normal vascular tone or bring about vasoconstriction in the lower extremities to assure adequate cerebral flow. It has been demonstrated experimentally that the lower extremities are more responsive to vasoconstrictor influences than are the upper extremities. These are discussed in more detail in the original paper.

Clinically, the syndrome, unless borne in mind, may create considerable diagnostic confusion and may lead to an erroneous impression of organic aortic insufficiency. However, if the ordinary criteria of the latter are fulfilled, there should be little difficulty in making the distinction. The absence of a history of rheumatic fever or syphilis, together with the failure to elicit a diastolic murmur, absence of cardiac enlargement, the transitory nature of the "O" diastolic reading in the upper extremities and the presence of normal or elevated blood pressure (systolic and diastolic) in the lower extremities ordinarily differentiate this benign phenomenon from aortic insufficiency.

Functional aortic insufficiency presents no problem in differential diagnosis since dynamically it is rarely of sufficient magnitude to produce a diastolic pressure of less than 60 mm. of mercury (Garvin, C. F.: Functional Aortic Insufficiency, *Ann. Int. Med.* **13**:1799, 1940). It is needless to point out, of course, that reasonable care should be exercised to exclude a false low reading associated with excessive pressure on the antecubital space with the stethoscope piece. However, this pitfall is more theoretical than real. In actual practice a zero diastolic reading due to pressure-induced artefact would require far more force than is ordinarily applied clinically; it would necessitate a deliberately strong pressure.

There would appear to be little doubt that the syndrome is considerably more common than is generally appreciated. Further, while it has not as yet been reported in children, it probably is not rare in this group.

ADDITIONAL REFERENCE:

Stein, I.: Transient "O" Diastolic Blood Pressure (Indirect) in the Upper Extremities, *Ann. Int. Med.* **30**:615 (March) 1949.

Morris Wilburne, M.D., Beverly Hills, Calif.

INJECTION OF WHOLE BLOOD INTO INFANTS

To the Editor:—In reply to the query in *The Journal*, Sept. 30, 1950, page 437, concerning injections of whole blood into infants, no mention is made of the possibility of transmission of serum jaundice (hepatitis). This is a serious disease in infants, and, therefore, blood should not be given intramuscularly unless overwhelming evidence is present that it would be of benefit.

Jack Troy, M.D., Whiting, Ind.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, SEPTEMBER-DECEMBER 1950

Titles have been listed or abstracts made of important articles in the following journals in the Current Literature Department of THE JOURNAL during the past four months Any of the journals, except those starred, will be lent by THE JOURNAL to subscribers in Continental United States and Canada and to members of the American Medical Association for a period not exceeding five days. Three journals may be borrowed at a time. No journals are available prior to 1939. Requests for periodicals should be addressed to the Library of the American Medical Association and should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Thus most of these journals are accessible to the general practitioner.

Acta cardiologica Brussels.
Acta chirurgica Scandinavica Stockholm
Acta dermato-venereologica Stockholm
Acta endocrinologica Copenhagen.
Acta gastro enterologica belgica Brussels
Acta medica Scandinavica Stockholm
Acta odontologica Scandinavica Stockholm.
Acta oto-laryngologica Stockholm
Acta paediatrica Stockholm
Acta radiologica Stockholm
Acta tuberculosea Scandinavica. Copenhagen.
Algérie médicale Alger.
American Heart Journal St. Louis
American Journal of Clinical Pathology Baltimore.
American Journal of Digestive Diseases Fort Wayne, Ind
*American Journal of Diseases of Children A. M A., Chicago.
American Journal of Hygiene Baltimore
American Journal of the Medical Sciences Philadelphia.
American Journal of Medicine. New York
American Journal of Obstetrics and Gynecology. St Louis.
American Journal of Ophthalmology Chicago.
American Journal of Orthopsychiatry New York.
American Journal of Pathology. Ann Arbor, Mich
American Journal of Physiology. Baltimore
American Journal of Psychiatry. New York.
American Journal of Psychotherapy. New York
American Journal of Public Health New York
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York
American Journal of Syphilis, Gonor and Venereal Diseases St. Louis
American Journal of Tropical Medicine Baltimore
American Practitioner and Digest of Treatment Philadelphia
American Review of Tuberculosis New York
Anais da Clínica ginecológica da Faculdade de medicina da Universidade de São Paulo São Paulo.
Anesthesiology. New York.
Angiology. Baltimore
Annales medicinae internae Fenniae. Helsinki.
Annales paediatrici. Basel.
Annals of Allergy. Minneapolis
Annals of Internal Medicine Lancaster, Pa.
Annals of Otology, Rhinology and Laryngology. St Louis
Annals of the Rheumatic Diseases London
Annals of Surgery Philadelphia.
Annals of Tropical Medicine Liverpool
Annals of Western Medicine and Surgery Los Angeles
Archiv für Kinderheilkunde Stuttgart
*Archives of Dermatology and Syphilology A M A., Chicago
Archives of Disease in Childhood. London
*Archives of Industrial Hygiene and Occupational Medicine. A M A, Chicago †
*Archives of Internal Medicine A. M A, Chicago †
Archives des maladies du coeur. Paris
*Archives of Neurology and Psychiatry. A M A, Chicago
*Archives of Ophthalmology. A M A, Chicago
*Archives of Otolaryngology. A M A, Chicago †
*Archives of Pathology. A. M. A, Chicago
Archives of Physical Medicine. Chicago
*Archives of Surgery. A M A, Chicago
Archivio italiano di chirurgia Bologna
Archivos argentinos de *pediatría Buenos Aires*
Archivos de medicina infantil Havana
Archivos de pediatria del Uruguay. Montevideo
Archivos uruguayos de medicina, cirugía y especialidades Montevideo.
Arizona Medicine Phoenix
Australian Journal of Experimental Biology and Medical Science. Adelaide
Australian and New Zealand Journal of Surgery Sydney.
Beiträge zur Klinik der Tuberkulose Berlin-Heidelberg
Beiträge zur klinischen Chirurgie Berlin
Belgisch tijdschrift voor geneeskunde Leuven
Bibliotek for Laeger Copenhagen
Biochemical Journal London
Blood New York
Boletín de la Asociación médica de Puerto Rico Santurce.
Brain London
British Heart Journal London
British Journal of Cancer. London
British Journal of Dermatology and Syphilis London.
British Journal of Experimental Pathology London.
British Journal of Industrial Medicine London.
British Journal of Ophthalmology. London.
British Journal of Radiology. London
British Journal of Surgery Bristol
British Journal of Tuberculosis London.
British Journal of Urology. London
British Journal of Venereal Diseases London
British Medical Journal. London
Bulletin of the Johns Hopkins Hospital Baltimore
Bulletin of the Los Angeles Neurological Society. Los Angeles
Bulletin of the New York Academy of Medicine New York.
Bulletin of School of Medicine of University of Maryland Baltimore.
Bullettino delle scienze mediche Bologna
California Medicine San Francisco
Canadian Journal of Public Health Toronto.
Canadian Journal of Research Medical Sciences Ottawa.
Canadian Medical Association Journal. Montreal
Cancer Research Chicago
Cardiologia Basel
Chinese Medical Journal. Shanghai
Chirurg Berlin-Heidelberg.
Cincinnati Journal of Medicine Cincinnati.
Circulation New York
Clinica. Bologna
Clinical Science London
Connecticut State Medical Journal. Hartford
Delaware State Medical Journal Wilmington
Deutsche medizinische Wochenschrift. Stuttgart
Deutsche Zeitschrift für die gesamte gerichtliche Medizin Berlin-Heidelberg
Diseases of Chest Chicago
East African Medical Journal Nairobi
Edinburgh Medical Journal Edinburgh
Electroencephalography and Clinical Neurophysiology. Boston
Endocrinology. Springfield, Ill.
Gastroenterology Baltimore
Gazeta medica portuguesa Lisbon.
Gazzetta medica italiana Milan
Geburtshilfe und Frauenheilkunde Stuttgart.
Geriatrics Minneapolis.
Glasgow Medical Journal Glasgow.
GP (Journal of American Academy of General Practice) Kansas City, Mo
Hawaii Medical Journal. Honolulu.
Helvetica chirurgica acta Basel
Helvetica paediatrica acta Basel.
Hospital Rio de Janeiro
Illinois Medical Journal Chicago
Indian Journal of Medical Research Calcutta.
Indian Medical Gazette Calcutta
Industrial Medicine and Surgery Chicago
International Journal of Leprosy New Orleans.
Irish Journal of Medical Science Dublin
Journal of Allergy St. Louis
Journal of American Medical Women's Association Nashville, Tenn.
Journal of Applied Physiology Washington, D C
Journal of the Arkansas Medical Society. Fort Smith.
Journal of Aviation Medicine St Paul
Journal of Bacteriology. Baltimore.
Journal of Bone and Joint Surgery Boston
Journal of Bowman Gray School of Medicine Winston-Salem, N. C.
Journal of Clinical Endocrinology. Springfield, Ill
Journal of Clinical Investigation Cincinnati.
Journal of Clinical Pathology. London
Journal of Endocrinology. London.
Journal of Experimental Medicine New York
Journal of the Florida Medical Association Jacksonville
Journal of Hygiene London
Journal of Immunology Baltimore.
Journal of the Indiana State Medical Association Indianapolis.
Journal of Infectious Diseases Chicago
Journal of Insurance Medicine Louisville, Ky
Journal of International College of Surgeons Chicago.
Journal of Investigative Dermatology. Baltimore
Journal of the Iowa State Medical Society. Des Moines
Journal of the Kansas Medical Society. Topeka
Journal of Laboratory and Clinical Medicine St Louis

---

*Cannot be lent
†October issue appears under A M A Archives of.

Journal of Laryngology and Otology. London.
Journal of the Maine Medical Association. Portland.
Journal de médecine de Lyon. Lyon.
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Association of Georgia. Atlanta.
Journal of the Medical Society of New Jersey. Trenton.
Journal of Mental Science. London.
Journal of the Michigan State Medical Society. Lansing.
Journal of the Missouri State Medical Association. St. Louis.
Journal of the Mount Sinai Hospital. New York.
Journal of National Cancer Institute. Washington, D. C.
Journal of National Malaria Society. Columbia, S. C.
Journal of Nervous and Mental Disease. New York.
Journal of Neurology, Neurosurgery and Psychiatry. London.
Journal of Neuropathology and Experimental Neurology. Baltimore.
Journal of Neurophysiology. Springfield, Ill.
Journal of Neurosurgery. Springfield, Ill.
Journal of Nutrition. Philadelphia.
Journal of Obstetrics and Gynaecology of the British Empire. Manchester.
Journal of the Oklahoma State Medical Association. Oklahoma City.
Journal of Pathology and Bacteriology. Edinburgh.
Journal of Pediatrics. St. Louis.
Journal of Pharmacology and Experimental Therapeutics. Baltimore.
Journal of the Philippine Medical Association. Manila.
Journal of Physiology. Cambridge.
Journal of the South Carolina Medical Association. Florence.
Journal of the Tennessee State Medical Association. Nashville.
Journal of Thoracic Surgery. St. Louis.
Journal of Tropical Medicine and Hygiene. London.
Journal of Urology. Baltimore.
Journal of Venereal Disease Information. Washington, D. C.
Journal-Lancet. Minneapolis.
Kentucky Medical Journal. Bowling Green.
Kinderarztliche Praxis. Leipzig.
Klinische Monatsblätter für Augenheilkunde. Stuttgart.
Klinische Wochenschrift. Berlin-Heidelberg.
Lancet. London.
Laryngoscope. St. Louis.
Lyon chirurgical. Paris.
Maandschrift voor kindergeneeskunde. Leyden.
Medical Annals of the District of Columbia. Washington.
Medical Journal of Australia. Sydney.
Medical Press. London.
Medical Woman's Journal. Cincinnati, Ohio.
Medicina. Buenos Aires.
Medicina clínica. Barcelona.
Medicina internazionale. Milan.
Medicine. Baltimore.
Medisch maandblad. Djakarta.
Medizinische Klinik. Munich.
Military Surgeon. Washington, D. C.
Minerva ginecologica. Turin.
Minerva medica. Turin.
Minnesota Medicine. St. Paul.
Monatsschrift für Kinderheilkunde. Berlin-Heidelberg.
Monatsschrift für Unfallheilkunde. Berlin-Heidelberg.
Münchener medizinische Wochenschrift. Munich.
Nebraska State Medical Journal. Lincoln.
Nederlandsch tijdschrift voor geneeskunde. Amsterdam.
Nederlandsch tijdschrift voor verloskunde en gynaecologie. Haarlem.
Nervenarzt. Berlin-Heidelberg.
Neue medizinische Welt. Stuttgart.
New England Journal of Medicine. Boston.
New Orleans Medical and Surgical Journal. New Orleans.
New York State Journal of Medicine. New York.
New Zealand Medical Journal. Wellington.
Nordisk medicin. Stockholm.
North Carolina Medical Journal. Winston-Salem.
Northwest Medicine. Seattle.
Occupational Therapy and Rehabilitation. Baltimore.
Ohio State Medical Journal. Columbus.
Oncologia. Basel.
Paris médical. Paris.
Pediatria. Naples.
Pediatrics. Springfield, Ill.
Pennsylvania Medical Journal. Harrisburg.
Physiological Reviews. Baltimore.
Plastic & Reconstructive Surgery. Baltimore.
Policlinico (Med. Sect.). Rome.
Policlinico (Pract. Sect.). Rome.
Policlinico (Surg. Sect.). Rome.
Postgraduate Medicine. Minneapolis.
Practitioner. London.
Praxis. Bern.
Prensa médica argentina. Buenos Aires.
Presse médicale. Paris.
Proceedings of Royal Society of Medicine. London.
Proceedings of the Society for Experimental Biology and Medicine. Utica, N. Y.
Proceedings of Staff Meeting of Mayo Clinic. Rochester, Minn.
Psychiatric Quarterly. Utica, N. Y.
Psychiatry. Washington, D. C.
Psychoanalytic Quarterly. Albany, N. Y.
Psychoanalytic Review. Albany, N. Y.
Psychosomatic Medicine. New York.
Public Health Reports. Washington, D. C.
Puerto Rico Journal of Public Health and Tropical Medicine. San Juan.
Quarterly Bulletin of Sea View Hospital. Staten Island, N. Y.
Quarterly Journal of Medicine. Oxford.
Quarterly Journal of Studies on Alcohol. New Haven, Conn.
Radiology. Syracuse, N. Y.
Review of Gastroenterology. New York.
Revista argentina de reumatología. Buenos Aires.
Revista de la Asociación médica argentina. Buenos Aires.
Revista brasileira de cirurgia. Rio de Janeiro.
Revista chilena de pediatría. Santiago.
Revista clínica española. Madrid.
Revista clínica de São Paulo. São Paulo.
Revista española de las enfermedades del aparato digestivo. Madrid.
Revista de gastro-enterología de México. México.
Revista do Hospital das clínicas. São Paulo.
Revista médica de Chile. Santiago.
Revista médica dominicana. Ciudad Trujillo.
Revista paulista de medicina. São Paulo.
Rhode Island Medical Journal. Providence.
Rivista di clinica pediatrica. Florence.
Rivista di neurologia. Bologna.
Rocky Mountain Medical Journal. Denver.
Scalpel. Brussels.
Schweizerische medizinische Wochenschrift. Basel.
Semaine des hôpitaux de Paris. Paris.
South African Journal of Clinical Science. Cape Town.
South African Medical Journal. Cape Town.
South Dakota Journal of Medicine. Sioux Falls.
Southern Medical Journal. Birmingham, Ala.
Southern Surgeon. Atlanta, Ga.
Southwestern Medicine. El Paso, Texas.
Strahlentherapie. Berlin.
Surgery. St. Louis.
Surgery, Gynecology and Obstetrics. Chicago.
Texas State Journal of Medicine. Fort Worth.
Thorax. London.
Transactions of the Royal Society of Tropical Medicine and Hygiene. London.
Tubercle. London.
Tuberkulosearzt. Stuttgart.
Ugeskrift for laeger. Copenhagen.
United States Armed Forces Medical Journal. Washington, D. C.
Urologic and Cutaneous Review. West Palm Beach, Fla.
Virginia Medical Monthly. Richmond.
Western Journal of Surgery, Obstetrics and Gynecology. Portland, Ore.
West Virginia Medical Journal. Charleston.
Wiener klinische Wochenschrift. Vienna.
Wiener medizinische Wochenschrift. Vienna.
Wisconsin Medical Journal. Madison.
Yale Journal of Biology and Medicine. New Haven.
Zeitschrift für Geburtshilfe und Gynäkologie. Stuttgart.
Zeitschrift für Kinderheilkunde. Berlin-Heidelberg.
Zeitschrift für klinische Medizin. Berlin-Heidelberg.
Zeitschrift für Kreislaufforschung. Darmstadt.
Zentralblatt für Chirurgie. Leipzig.
Zentralblatt für Gynäkologie. Leipzig.

SUBJECT INDEX

This is an index to all the reading matter in The Journal. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "OS," Organization Section; "ab," abstracts; the asterisk (*) indicates an original article in The Journal.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

For the author index see page 1661.

A

ACS: See Bogomolets Antireticular Cytotoxic Serum
ACTH
  action, mode of, [Heilmeyer] 1591—ab
  carbohydrate metabolism and [Overbeck] 1522—ab
  Conference (second) 1274
  course on use, (W. Va.) 325; (Jefferson Medical College) 771; (Wis.) 1492
  effect on reproduction, [Tompkins] 261—C
  effect on wound healing, 47—E
  eosinophil count response to, after giving cortisone, [Sprague & others] *1341
  eosinophilia, Thorn test in, [Hernandez Morales & others] *379
  Nobel Prize for 1950 awarded to Drs. Hench, Kendall and Reichstein, 819—E
  physiological effects in man, [Sprague & others] *1341
  research, millions for, approved by Truman, 696
  screening test for, ephedrine in, [Abelson] 716—ab
  supply, [Hench & others] *1331
  supply, for U. S. Army hospitals in Korea, etc., 471
  symposium on, at A.M.A. Section, [Hench & others] *1327; [Massell & Warren] *1335; [Sprague & others] *1341; [Howard & others] *1347; [Pearson & Eliel] *1319; [Shy & others] *1353
  symposium on, at International Congress of Pediatrics, Switzerland, 777
  toxicity, [Hench & others] *1328
  toxicity: Cushing's syndrome [Taylor & others] *1063
  toxicity: fatty infiltration of liver, [Pelner & Waldman] 412—C
  toxicity: hypercholesteremia, [Adlersberg & others] *909
  toxicity: perforated duodenal ulcer, [Habif & others] *996
  toxicity: skin complications, [Behrman & Goodman] *218
  Treatment: See also Allergy; Arthritis, Rheumatoid; Cancer; Cushing's Syndrome; Eyes, diseases; Glaucoma; Gout; Hodgkin's Disease; Keratitis; Kidneys, disease; Leukemia; Lupus erythematosus; Lymphoma; Peptic Ulcer; Purpura; Reiter's Disease; Rheumatic Fever; Uveitis
  treatment of malignant conditions, [Spies] 1036—ab
  treatment, prolonged, lipemic variations after, Italy, 1107; 1393
ABDOMEN: See also Ascites; Gastrointestinal Tract; Pelvis
  acute conditions, and alcoholism, 1213—ab
  acute conditions, hemophilia simulating, [Shelton] 1212—ab
  Adhesions: See Adhesions
  hemorrhage due to rupture of uterine vessel by twisted fibroid, [Kaye & Ficarra] *616
  Surgery: See also Cesarean Section; Gallbladder
  surgery, automatic *electroencephalographically* controlled anesthesia in, [Mayo & others] *1081
  Viscera: See Viscera
  wall flaps for grafting ileostomy or colostomy stoma, [Pickrell] 423—ab
ABELL, IRVIN, memorial clock at Louisville, 698
ABNORMALITIES: *See under specific organ* and region as Heart; Kidneys
ABORTION
  Conference on Pregnancy Wastage, 1579
  habitual, 80
  preconception clinic established, New York, 1273
  therapeutic, in rubella, Sao Paulo, Brazil, 779
  vaginal smear in, [Benson] 955—ab
ABSCESS: See Ulcers, under organs affected as Brain; Teeth; Tonsils
  Psoas: See Muscles, psoas
ABSORPTION: See Insulin; Intestines; Vitamins
ABT Lecture: See Lectures
ACACIA
  allergy to pharmaceutical excipients, [Randolph] 1027—ab
ACADEMY: See also under names of specific academies as American Academy; Kalamazoo Academy; National Academy; New York Academy; list of Societies at end of letter S
  of Sciences of Ferrara discusses androgens therapy, 481
ACCELERATION: See Aviation
ACCIDENTS: See also Disasters; Trauma; Wounds
  Accident Handbook, for use in home published by Children's Hospital of Boston, 1007—E
  Automobile: See Automobiles
  fatal home, decline, 57
  in children, American Academy of Pediatrics Committee to reduce, 192; 1015; 1183—E
  in children: deaths; crippling, [Dietrich] *1175; 1183—E
  Industrial: See Industrial Accidents
  Insurance: See Insurance
  prevention, Council report, 649
ACETARSONE
  efficacy in congenital syphilis, [Nyhus] 1037—ab
ACETRIZOATE, sodium, N.N.R. (description) 623; (Mallinckrodt) 623
ACETYLAMINOFLUORENE
  thyroid tumor produced with, [Doniach] 1519—ab
ACID
  Amino Acids: See Amino Acids
  aminoacetic, glycine and calcium carbonate, N.N.R., (Schenley), 314
  p-aminobenzoic, treatment of typhus, [Chung] 798—ab
  p-aminosalicylic and its calcium salt, treatment of typhoid and brucellosis, 1498
  p-aminosalicylic, derivative in genitourinary tuberculosis, [Debray] 801—ab
  p-aminosalicylic (lupulon) treatment of leprosy, [Johansen & Erickson] *989
  p-aminosalicylic, N.N.R. (description) 760; (Merck) 760
  p-aminosalicylic plus streptomycin in renal tuberculosis, 809
  p-aminosalicylic, plus streptomycin, in tuberculous meningitis, [Rossi] 274—ab
  p-aminosalicylic, reactions to, Paris, 255
  p-aminosalicylic, synergism and antagonism, [Bigger] 716—ab
  p-aminosalicylic, treatment of chronic pulmonary tuberculosis, [Dooneief] 344—ab
  p-aminosalicylic, treatment of tuberculosis, [Heilmeyer] 428—ab
  amylethyl barbituric, treatment of depressed patient, [Grahn] 1303—ab
  Ascorbic: See also Vitamins C
  ascorbic, and desoxycorticosterone in rheumatoid arthritis, 1107; [Graham] 1121—ab
  ascorbic, excretion, and hypoxia, [Krasno] 1404—ab
  ascorbic, in adipose tissue, [Page] 1590—ab
  ascorbic, plus deoxycortone in rheumatoid arthritis, [Bywaters] 271—ab
  ascorbic, treatment of arthropathies, [Buttaro] 502—ab
  ascorbic, treatment of whooping cough, [DeWit] 879—ab
  boric, synergism and antagonism, [Bigger] 716—ab
  Cevitamic: See Acid, ascorbic
  folic, and vitamin B_{12} in pernicious anemia, [Schrumpf] 1039—ab
  Folic, Antagonist: See Aminopterin; Amethopterin
  folic, in pernicious anemia and related megaloblastic anemia, [Vilter] 954—ab
ACID—Continued
  folic, treatment of anemias, [Haehner] 962—ab
  folic, treatment of pernicious anemia, long term evaluation, [Schwartz] 419—ab
  glutamic, treatment of petit mal epilepsy, 724
  iodoacetic, irritant action of in biochemist, [Flesch] 1110—C
  nicotinic, deficiencies, [Youmans] *386
  Nicotinic, Diethylamide of: See Nikethamide
  pyruvic, level in blood, carbohydrate metabolism disturbed in diabetes, 1394
  salicylic therapy, possibilities of solusal, [Blumencron] 1216—ab
  undecylenic, exfoliative dermatitis after its use in psoriasis, [Schiff] *620
  undecylenic, N.F., N.N.R. (description) 761; (Wallace & Tiernan) 761
  undecylenic, sevinon treatment of leprosy, [Johansen & Erickson] *989
ACID-BASE BALANCE
  disturbances, water-chloride balance in, [Scribner & others] *1171
ACIDITY
  Gastric: See Stomach acidity
ACIDOSIS
  Diabetic: See Diabetes Mellitus
ACNE
  treatment, pigmentation after, 1419
ACRYLIC prosthesis, 197
ACTINOMYCES, Antibiotic Prepared from: See Streptomycin
ACTINOMYCOSIS
  treatment, aureomycin hydrochloride, [Wright & Lowen] *21
ACTIVITY: See Exercise
  following Operation or Illness: See Convalescence
ACUPUNCTURE
  treatment of keloids, 858
ADAIR Foundation: See Foundations
ADAPTATION: See Eyes, accommodation
ADDICTION: See Alcoholism; Drugs; Narcotics
ADDISON'S ANEMIA: See Anemia, Pernicious
ADDISON'S DISEASE
  pathogenesis, [O'Donnell] 871—ab
  treatment, streptomycin, [Guy-Laroche] 1523—ab
  without increased pigmentation, [Hedinger] 430—ab
ADDRESSES: See Lectures
  at A.M.A. Session: See American Medical Association, Section on . . ., chairman's address
ADENITIS See Lymphatic System
ADENOCARCINOMA
  of uterus, diagnosis by genital smears, [Cuyler] 1516—ab
  papillary, of ovary, 697
  papillary, of thyroid; radioactive iodine for metastases to lung, [Freedberg & others] *16
ADENOMA
  Nontoxic, of Thyroid: See Goiter
  parathyroid, and renal calculi, [Kretschmer] 420—ab
  pituitary, degenerative changes in, [Brougham] 1306—ab
  pituitary, radiotherapy, [Buschke] 497—ab
  Toxic, of Thyroid: See Goiter, Toxic
ADENOMYOSIS: See Endometriosis
ADHESIONS
  peritoneal, plication for, [Ripstein] 954—ab
ADOLESCENCE
  erythrocyte values of adolescent workers, Brazil, 1500
  Midcentury White House Conference on, 1996—E; 1380; 1467—E
  precocious puberty, adrenal cortex tumor in boy of 6, [Lynch] *921
ADRENALECTOMY See Adrenals
ADRENALINE: See Epinephrine
ADRENALS See also Addison's Disease
  Adrenocorticotropic Hormone: See ACTH

ADRENALS—Continued
  adrenocorticotropics, personality classification, 1536
  cortex activity, Thorn test of eosinophilia, [Hernandez Morales & others] *379
  cortex and homeostasis, 1006—E
  cortex atrophy after ACTH and cortisone, [Sprague & others] *1346
  Cortex Compound L. See Cortisone
  cortex, excretion of steroids as an aid in diagnosis, 464—ab
  cortex extract (aqueous) dosage vs insulin requirement, [Green & others] *442
  cortex extract, treatment plus tostosterone for asthenia, France, 859
  cortex extracts, effect, [Hench & others] *1332
  cortex function and postoperative retention of salt and water, [Hardy] 1403—ab
  cortex function and postoperative salt retention, [Johnson] 1511—ab
  cortex, functional tumor in male child aged 6, [Lynch] *921
  Cortex Hormone (Crystalline): See Desoxycorticosterone
  cortex hyperglycemia, [Wilder] *1237
  cortex response to stress, role of potassium, [Hoagland] 495—ab
  excision, bilateral adrenalectomy in malignant hypertension and diabetes, [Green & others] *439
  Hormone (Sympathetic): See Epinephrine
  hyperplasia, cause of large genitals in infant, 725
  insufficiency in infancy, [Geppert] 713—ab
  tumors, pheochromocytoma, 396—E; [Bartels] 488—ab; [Koffler] 1028—ab
  tumors, pheochromocytoma, increased urinary arterenol and epinephrine, [Engel] 1408—ab
  tumors, piperoxan (benodaine) aids in removal, [Kositchek & Rabwin] *826
  weight after giving cortisone, [Sprague & others] *1345
ADRENOCORTICOTROPIC HORMONE: See ACTH
ADVERTISING
  Campaign of A M A: See American Medical Association, National Education Program
  emblem for advertising accepted in Today's Health, 635
  medical, [Boles] *364
  newspaper, of CIO National Health Committee, 933—E
  of sun lamps sold to the public, requirements for acceptance, (Council report) 626
  State Journal, Advertising Bureau report, 637
  value of, by Santa Clara County (California) Medical Society, 243—E
ADVISORY
  Committee for Biology and Medicine to Atomic Energy Commission, 53
  Committee on Health Resources to National Security Resources Board, 650
AERATOR
  Home Whirlpool, 1093
AERONAUTICS: See Aviation
AEROSOLS: See also Inhalation
  antibiotic, neubulization, *32
  antibiotic, treatment of respiratory infections, [Prigal & Molomut] *897
  pulmonary toxicity of wetting agents in, [Hall] 1202—ab
  streptomycin in pulmonary tuberculosis, [Miller] 951—ab
AEROSPORIN
  treatment of plague, [Meyer] *984
AFRICA
  WHO regional office for, 1016
AFTERBIRTH: See Placenta
AGE
  Adolescent: See Adolescence
  middle, active rheumatic carditis in those over 40, [Wroblewski] 1402—ab
  Old Age See Old Age
AGGLUTININS
  agglutination serum test for active tuberculosis, [Smith] 412—C
  cold, in primary atypical pneumonia, [Eyquem] 965—ab
  cold, Middlebrook-Dubos hemagglutination test in tuberculosis, [Smith] 952—ab
  irregular, in shock due to transfusion, *[Steinmann] 880—ab*
  Rh: See Rh Factor
AGRANULOCYTOSIS, ACUTE
  etiology: gantrisin, recovery, [Haunz & others] *1179
AIR: See also Humidity; Oxygen
  chemicals in the atmosphere, 809
  disinfection, 211
  Dust in, as Industrial Hazard; See Pneumonoconiosis
  Embolism: See Embolism
  hunger, 1533
  Injection: See Pneumoperitoneum; Pneumothorax, Artificial
  pollution, poisonous smog kills 15, Mexico, 1493
  pollution study, West Virginia, 772
  pressure, reduced in submarines, [Pugh] *230
AIR FORCE: See Aviation, U S Air Force
AIR PASSAGES: See Respiratory System
AIRPLANES: See Aviation
AIR RAIDS
  effects of extreme heat on man, [Buettner] *732
ALASTRIM
  in Argentina, 63
ALBUMIN
  active antiserums in rhesus typing, [Stilk] 207—ab
  egg white as carcinogenic factor, [Hartmann] 74—ab
ALCOHOL
  Addicts: See Alcoholism
  arthritis in relation to, 1047
  Benzyl: See Benzyl Alcohol
  cocktails and exhaustion in young business executives, [Portis & others] *1163
  diabetic sugar free when taking, 1325
  effect of sugar on alcohol content of blood, [Klein] 274—ab
  effect on development of children, [Fischer] 347—ab
  hemografts of aorta preserved in, [Paolucci] 1305—ab
  idiosyncrasy to, 598
  tolerance, experience of Marion Sims, [Johnson] 412—C
  treatment for angina pectoris, 1225
ALCOHOLISM
  A M A. resolution on establishing special committee on problems of, 1481
  acute abdominal conditions and, [Cohn] 1213—ab
  chronic alcoholics, new state division to rehabilitate, Mass, 1191
  diagnostic tests, state laws on, (Bureau report) 655; 861; 867
  effect of acute intoxication on the body, 810
  fatty infiltration of liver in, [Cachera] 1315—ab
  treatment, antabuse, [Marti-Granell] 1312—ab
  treatment apomorphine, [de Morsier] 351—ab
  treatment, aversion, [Lemere] 423—ab
ALEPPO BOIL: See Leishmaniasis, cutaneous
ALIENS: See Immigrants; Physicians, foreign; Refugees
ALKALI-plasma transfusion, [Bucher] 880—ab
ALLERGY: See also Asthma; Dermatitis venenata; Eczema; Hay Fever; Urticaria
  Alpha Omega Alpha memorial lecture on, Wisconsin, 1193
  A M A. Section on (report), 1479
  atopic dermatitis, 868
  clinical training in, fellowships for, Chicago, 770
  course in, New York City, 1491
  encephalitis, [Peers] 336—ab
  encephalomyelitis, [Halpern] 880—ab
  gastrointestinal, [Turnbull] 874—ab
  in asthma, Paris, 331
  Institute established, at Roosevelt Hospital, N. Y, 854
  map, U. S-Canadian, by American Academy of Allergy, 1194
  parasitic illness, Brazil, 779
  reactions (fatal) to intravenous procaine, 812
  sensitivity to alcohol, 598
  sensitivity to Bermuda grass, 437
  sensitivity to corn, role in reactions to dextrose, 1379—E
  sensitivity to embalming fluid, 1417
  sensitivity to excipients of pharmaceuticals, [Randolph] 1027—ab
  sensitivity to foods skin testing and intentional feeding, [Leibowitz & others] *990
  sensitivity to milk and cheese, painful shoulder due to, [Castex] 963—ab
  sensitivity to pollens, 597
  sensitivity to quinidine, 887
  sensitivity to tobacco smoke, 810
  sensitivity to tobacco smoke in infant, cause of asthma, [Rosen & Levy] *620
  surgery and, discussed at Italian Society of *Surgery, Italy, 566*
  tests, sudden death due to [Harris] 69—ab
  treatment, ACTH, [Howard & others] *1347
ALOPECIA
  partial, due to scalp massage, [Bowers] 498—ab
  progressive, 212
  temporary baldness due to cold wave thioglycolate preparations, [Reiches & Lane] *305
ALPHA *Omega Alpha Lecture: See Lectures*
ALTITUDE
  High: See also Aviation
  high, effect on cutaneous leishmaniasis and leprosy, [Schmidt] 264—ab
  high, rays beyond 70,000 feet altitude: heavy nuclei rays, 1424—ab
ALUMINUM
  Buettner suit to protect against heat from fire, [Buettner] *737
  gels, treatment of renal phosphatic calculi [Shorr & Carter] *1549
  hydroxide treatment of peptic ulcer, [Hardt] 574—ab
  monostearate and procaine penicillin (PAM) in early syphilis, [Thomas] 787—ab
  ore, fluoride poisoning in reducing, 1323
  oxide, pulmonary disorder after exposure to, [Schwellnus] 273—ab
  phosphate precipitated toxoids, [McComb] 1516—ab
ALVEOLAR Cell Tumor: See Lungs
AMAAS: See Alastrim
AMBULANCES
  plane, study of, Norway, 705
AMBULATION: See Convalescence
AMEBIASIS: See also Colitis, amebic, Liver, amebic abscess
  treatment, aureomycin, [Armstrong] 586—ab; [Gutch] 1030—ab
AMERICA
  Let's keep America healthy: fight against communism, 1094—E
AMERICAN. See also America; Inter-American; Latin American; National, Pan American; United States, list of societies at end of letter S
  Academy of Allergy, U. S-Canadian allergy map, 1194
  Academy of Compensation Medicine, 1192
  Academy of Forensic Sciences organized in 1950, 651
  Academy of General Practice, "Manual on Establishment and Operation of Department of General Practice in Hospitals," 766—E
  Academy of Pediatrics, (new Committee on Child Safety) 1015; 1183—E
  Board of Anesthesiology (officers; certificates; requirements), *150
  Board of Dermatology and Syphilology (officers; certificates, requirements), *151
  Board of Internal Medicine (officers, certificates; requirements), *152
  Board of Internal Medicine subspecialty board in gastroenterology, 325
  Board of Neurological Surgery (officers; certificates; requirements), *156
  Board of Obstetrics and Gynecology, (officers; certificates; requirements) *152; (broadens regulations for candidates) 835
  Board of Ophthalmology (officers; certificates; requirements), *160; (examinations) 1193
  Board of Orthopedic Surgery (officers; certificates; requirements), *162
  Board of Otolaryngology (officers; certificates; requirements), *164
  Board of Pathology (officers; certificates; requirements), *166
  Board of Pediatrics (officers; certificates; requirements), *168
  Board of Physical Medicine and Rehabilitation (officers; certificates; requirements), *169
  Board of Plastic Surgery (officers, certificates; requirements), *170
  Board of Preventive Medicine and Public Health (officers; certificates; requirements), 172
  Board of Proctology (officers; certificates; requirements) *173; (correction) 477
  Board of Psychiatry and Neurology, (graduate training programs acceptable by) *140, (officers; certificates; requirements), *175
  Board of Radiology (radiology services approved by) *136-*140, (officers, certificates; requirements), *176
  Board of Surgery (officers; certificates; requirements), *178
  Board of Urology (officers; certificates; requirements), *180
  boards, approved, *149; 665
  Cancer Society (grants for scholar in cancer research) 560, *(clinical fellowships) 1015*
  College of Surgeons (inspection of hospitals) 394—E; 932—E, (Dr. Malcolm T. MacEachern retires from) 1193, (Conference Committee on Graduate Training in *Surgery) 1468—E; 1503,* (A M A resolution on hospital standardization) 1480; 1484
  Druggist: See Journals
  Dynatherm, XM-400, 315
  Foundations: See Foundations
  Hospital Association (resolution on inspection of hospitals by hospitals) 394—E; [Rigterink] 1110—C; (Commission on Chronic illness founded in 1949) 466—E, (hospital standardization program) 695; (A M A resolution on) 1480; 1484
  Indians: See Indians
  Institute of Nutrition (solicits nominees for nutrition awards) 940
  Journal: See Journals
  MEDICAL DIRECTORY, report on 18th Edition, 1950, 636
  Physicians: See Physicians
  Public Health Association (disapproves compulsory health insurance) 932—E
  Public Relations Association (award for television broadcast) 1194
  Public Welfare Association (Commission on Chronic Illness founded in 1949) 466—E
  Red Cross. See Red Cross
  Review of Tuberculosis See Journals
  Unity, Common Council for, (promotes national letter writing week) 932—E
  Venereal Disease Association, (statement on penicillin in treatment of syphilis) 947—C
AMERICAN MEDICAL ASSOCIATION
  Advertising Campaign. See subhead: National Education Program
  AMERICAN MEDICAL DIRECTORY, 636
  Annual Congress on Medical Education and Licensure, 665

AMERICAN MEDICAL ASSOCIATION — Continued
Annual Medical Public Relations Conference (3rd) 639, (program) 1180
Atlantic City Session (1951), 1170
Board of Trustees, (abstract of minutes of meeting, Aug. 12, 1950) 188, (action on resolution adopted by American Hospital Ass n on their inspection of hospitals) 394—E; (report) 633, (abstract of minutes of meeting, Sept 15-16, 1950) 691; (health and politics; fight against socialized medicine) 811—E, (Kalamazoo Academy of Medicine endorses editorial on inspection *of hospitals*) [*Rigterink*] *1110—C*, (financial support for medical education by) 1378—E; 1183; 1186; (report) 1170 (resolution on AMA officers attending their meetings) 1485
building, federal investigation at, 651
Bureau of Exhibits, (report) 658
Bureau of Health Education: See also subhead: Radio Program
Bureau of Health Education, (report) 655
Bureau of Investigation, (report) 647
Bureau of Legal Medicine and Legislation: See also Laws and Legislation, state, weekly summary; Medicolegal Abstracts at end of letter M
Bureau of Legal Medicine and Legislation, (report) 651; (summary survey of state legislation) 861
Bureau of Medical Economic Research, (Bulletin 78, State Physician-Population Ratios) 214—E; (report) 660 (maternal mortality in U. S in 1949) [Dickinson & Welker] *1395
By-Laws, amendment to, A M A resolution on, 1483
Chemical Laboratory, (expansion) 645
Cleveland Clinical Session, Dec 5-8, 1950, 188, 241—E, (program) 627; 689—E 1011; 1376—E, (proceedings) 1469
Clinical Session. See also subhead. Cleveland Clinical Session
Clinical Session: 1951 at Houston, 1377—E; 1472, (report) 1179
Clinical Session: 1952 at Denver, 693, 1377—E, 1172
Clinical Session: 1953 at St Louis, 1377—E; 1472
Clinical Sessions, should they be continued? 1472
Commission on Chronic Illness, 466—E, 694; 1486
Committee: See also subheads as Correlating Committee; Joint Committee; Local Committee; Reference Committee
Committee on Blood Banks, (cooperates in national blood procurement program) 550—E; (cost of *mass typing; Chicago's* walking blood bank) [Ivy] 780—C, (reply by *chairman A M A* Committee) [Larson] 780—C; (report of meeting approved by Board of Trustees) 695; 1377—E, 1473; 1474
Committee on Chronic Diseases, (report) 694; 1486
Committee on Constitution and By-Laws, 1377—E; 1477
Committee on Cosmetics, (report) 611; (list of *preparations accepted*) 1001
Committee on Indigent Medical Care, (report) 668
Committee on Legislation, (report) 661, 1471
Committee on Medical Care of Veterans changed to Council on Federal Medical Services, (report) 1478
Committee on Medical Motion Pictures, (*report* on film library, film source file, film projects) 659; (Films cleared for television) 1024
Committee on Medicolegal Problems created, 651
Committee on Pesticides, 642
Committee on Research, 643
Committee on Rural Health, (report 11 point program) 661; 1471
Committee to Entertain Foreign Guests at Sessions of, 695—OS
Committee to Make Thorough Study of Matter of Public Relations, 695; 1472
Conference Committee on *Graduate* Training in Surgery, 1468—E; 1503
Constitution (A M A Committee on), 1377—E; 1477; (amendment to), 1483
Cooperation: See subhead · Representation
Cooperative Medical Advertising Bureau See subhead: State Journal Advertising Bureau
Correlating Committee on Extension of Hospital and Other Facilities *of the Council* on Medical Service ('Hess Committee"), 648; (Bureau report) 653
Council on Federal Medical Services, A M A. resolution on, 1478
Council on Foods and Nutrition, HANDBOOK OF NUTRITION, [Youmans] *34; *307; *386
Council *on* Foods and Nutrition, (report) 646; (testimony of Dr Darby on chemicals in foods) 1572
Council on Industrial Health, (report), 648, 1470

AMERICAN MEDICAL ASSOCIATION — Continued
Council on Medical Education and Hospitals, (*medical education* in U. S and Canada) *109; 182—E, (joint survey of medical *education*) *111; 663, (radiology services approved by American Board of Radiology and) *136-*140; (report) 662, 1479; (*collaboration* with other agencies), 665; (graduate continuation courses), *132; 1255—E, *1287, (new hospitals registered) 1587
Council on Medical Service: See also subhead: Washington Office
Council on Medical Service, (abstract of minutes of meeting, seal of acceptance) 217; (1950 revision of "Voluntary Prepayment Care Plans") 317—E, (report) 668; 1179
Council on National Emergency Medical Service, (*report*) 619, (status of former medical officers), 937, (report), 1471
Council on Pharmacy and Chemistry, [illegible], [Rohwer & h[illegible] [illegible]41, (report on [illegible] 927, (roentgen and steroid *hormone therapy* in mammary cancer metastic to bone) [Garland & others] *997; (status of BCG Vaccine), *1260, (potency of heparin sodium) 1461
Council on Physical Medicine and Rehabilitation, (minimal requirements for acceptable pure tone audiometers *for* screening purposes) 465, (revised requirements for acceptable direct reading electroencephalographs) 165, (minimal requirements for acceptance of sun lamps) 625; (annual report) 645; (grants leave of absence to Dr. Rush, 694; (artificial respiration) [Gordon & others] *1455; (oral and rectal temperatures of *man*), [Horvath & others] *1562
Council on Scientific Assembly (report), 667; *1179*
Denver Clinical Session, (for 1950 changed to Cleveland) 667; (for 1952) 695
distinguished service medal, Gold Medal Doctors, 656
doctor-draft bills, 187; 395—E
Dues · See subheads: Fellowship; Membership
Exhibits: See also subheads: Scientific Exhibit; Technical Exposition
exhibits of the Association, 658
Fellowship, (number of Fellows) 632, (dues) 695; (questions concerning), 1377—E; 1477
General Practitioner's Award to Dean Sherwood Luce, 1378—E; *1469*
grants for research, list of, 643
Headquarters. See subhead; Building
"Hess Report" on Corporate Practice, 648; 653
hospitals registered by, additional list, 1587
hospital standardization, [Henderson] *1268; (A M A resolution on) 1472; 1480; 1484
House of Delegates, Cleveland Clinical Session, 629; (only digest of actions to be published in the Journal) 1369—E, (proceedings), 1469; (address of Vice Speaker Reuling), 1469; (apportionment of delegates) 1483
Hygeia See subhead: Today's Health
Internships approved by, *135; (additional), 1506
investment policy, change in, 633
Joint Committee on Medical Education in Time of National Emergency, (statement adopted by A M A Council and Association of American Colleges), 1095—E; 1111
JOURNAL, (readership survey; changes made) 633; (Fellows and subscribers on mailing list) 633, (percentage of physicians receiving) 634; (subscription rate to be increased), 694; (cited in Congressional Record in discussion on chemical in foods), 1267
journals (special), 634, (change title to employ the letters "A M A", also color of cover changed) 1096—E
Judicial Council (report), 1475
Laboratories, (report) 644
Library, (report) 636
Local Committee on Arrangements, Cleveland Clinical Session, 629
medical education survey by, *111, *663*
medical schools, financial *aid from* A M A, 1378—E, 1476, 1483; 1486, 1570
medical schools, financial aid from U. S government discussed by, 638, 1476
membership (statistics), 632, (question concerning dues), 1377—E, 1472; (*single* classification of), 1477
Microbiologic Section, 645
Motion Picture Film Library, List of Pictures Reviewed See Moving Pictures, Medical
National Education Program to promote health insurance plans and to prevent state medicine, [Henderson] *319; 469—E; (smear campaign by J D Dingell in *Congressional* Record) 552—E; 553; (supported by Association of State and *Territorial Health* Officers) 852; (protested by CIO National Health Committee's newspaper advertising), 933—E, [Henderson] *1269

AMERICAN MEDICAL ASSOCIATION — Continued
Nepera *Chemical Co.* and, sponsor luncheon; for medical editors Oct 21 551—E
Officers (list of 1950-1951), 627; (report) 632; 1470, (resolution on their attending meetings of Board of Trustees) 1485
PR Doctor, 639
President's address to House of Delegates, [*Henderson*] *1268; 1469
President's page a monthly message, 317—E; (Sept) 319, (Oct) 553, 767, (Nov) 933; (Dec) 1186, 1570
Press Relations *(report) 638*
Proceedings of Cleveland Session, 1469
Program of Cleveland Clinical Session, 671
Public Relations Conference. See subhead, Annual Medical Public Relations
Public Relations Department, (report), 638, 1470
QUARTERLY CUMULATIVE INDEX MEDICUS, (report), 637; (change in 1951 listing of A M A special journals), 1097—E
radio program, (documentary broadcasting) 467—E, (report) 655
Reference Committee on Amendments to Constitution and By-Laws (report), 1478; 1483; 1484; 1485
Reference Committee on Emergency Medical Service (report), 1475; 1482
Reference Committee on Hygiene and Public Health (report), 1482
Reference Committee on Industrial Health (report), 1472
Reference Committee on Insurance and Medical Service (report), 1484
Reference Committee on Legislation and Public Relations, (report) 1485
Reference Committee on Medical Education, (report) 1472, 1481; 1482, 1483, 1485
Reference Committee on Miscellaneous Business, (report) 1480; 1481
Reference Committee on Reports *of Officers*, 1469
Reference Committee on Reports *of Board* of Trustees and Secretary, (report) 1472, 1484
Reference Committee on Sections and Section Work, (report) 1479
Reference Committees, (meeting rooms) 630; (list of) 694
Reports of Officers, October 21, 1950, 632
representation on other organizations, 188; 640, 657; 694
residencies (additional) approved by, *135
resolution on absence of Dr Roy Fouts, 1481
resolution on absentee ballot, 1480
resolution on adding A M A. Committee on Constitution and By-Laws to standing committies, 1477
resolution on A M A Council on Federal Medical Services, 1478
resolution on A M A fund to aid *medical* schools, 1483, 1486
resolution on changing Section on Nervous and Mental Diseases to Section on Neurology and Psychiatry, 1484
resolution on competition by hospitals with practice of medicine, 1482
resolution on determining policy of A M A on legislative proposal, 1485
resolution on establishing special committee on problems of alcoholism, 1481
resolution on facilities of the Association available in serving the nation 1480
resolution on federal aid to medical education, 1482
resolution on free choice of physicians for U S employees, 1472
resolution on hospital standardization program, 1480; 1484
resolution on House of Delegates apportionment, 1483
resolution on inspecting government agencies and use of medical personnel, 1482
resolution on mail deliveries, 1481
resolution on medical care of veterans with nonservice connected disabilities, 1484
resolution on paying expense of section delegates, 1484
resolution on officers attending meetings of Board of Trustees, 1485
resolution on proposed amendment to Principles of Medical Ethics, 1481
resolution on U S Department of Health, 1485
Scientific Exhibit, (at Washington Clinical Session, *1949*), 658; (at San Francisco Session, 1950) 658 (at Cleveland Clinical Session, Dec. 1950), 188; 658; 667 (at Atlantic session in 1951); 937; 1270
Scientific Program at Cleveland Clinical Session, Dec. 5, 671
Secretary's Letter, 639
Secretary, report, 1470
Section on Allergy, (report) 1479
Section on Diseases of Chest, (chairman's address) [Vest] *1232
Section on Dermatology and Syphilology, (chairman's address) [Lane] *1361

AMERICAN MEDICAL ASSOCIATION — *Continued*
  Section on Experimental Medicine and Therapeutics, (chairman's address) [Cattell] *889; (symposium on ACTH and cortisone), [Hench & others] *1327; [Massell & Warren] *1335; [Sprague & others] *1341; [Howard & others] *1347; [Pearson & Eliel] *1349; [Shy & others] *1353
  Section on Gastro-Enterology and Proctology, (chairman's address) [Boles] *361
  Section on General Practice, (chairman's address) [Casebolt] *599
  Section on Internal Medicine, (chairman's address), [Bloomfield] *287
  Section on Laryngology, Otology and Rhinology, (chairman's address) [Johnston] *977
  Section on Medicine in Industry (not to be established) 667
  Section on Military Medicine, (applications for establishment considered by council) 667; (established) 1377—E
  Section on Nervous and Mental Diseases, resolution on changing to A M A Section on Neurology and Psychiarty, 1484
  Section on Neurology and Psychiatry, (chairman's address) [Moersch & Sayre] *1141; (resolution on change in name) 1484
  Section on Obstetrics and Gynecology, (chairman's address [Bloss] *1358
  Section on Ophthalmology, (Board of Trustees discusses publishing Transactions of) 188; (chairman's address) [Irvine] *1123
  Section on Orthopedic Surgery, (chairman's address), [Barr] *813
  Section on Physical Medicine and Rehabilitation, (first chairman's address) [Krusen] *727
  Section on Preventive and Industrial Medicine and Public Health, (no change in name of) 667; (chairman's address), [Neupert] *1537
  Section on Radiology, (chairman's address) [Portmann] *513; (correction) 701
  Section on Surgery, General and Abdominal (chairman's address) [DeBakey & others] *1227
  Section on Urology, (chairman's address) [Cook] *1421
  Sections (report of A M A. Reference Committee) 1479; (resolution on paying expenses of delegates) 1484
  Stack (Alfred W.), death, 54
  STANDARD NOMENCLATURE OF DISEASES AND OPERATIONS, 1950 revision, 635
  State Journal Advertising Bureau, (report) 637
  Student A.M.A., 468—E; 691, 937
  Symposium on Antibiotics [Herrell & Barber] *519; [Hunter] *521; [Friedberg] *527, (discussion) 533
  Technical Exposition Cleveland clinical session, 683; 1376—E
  television at Cleveland Clinical Session, 667, 675
  television at clinical sessions, applicatons approved by council, 667
  Today's Health, (readership survey; advertising emblem, circulation) 635; (Bureau's report) 655
  Trustees See Subhead: Board of Trustees
  Vice President Robbins: Why Medical Economics? 1263—E
  Washington legislative problems, conference to educate state society leaders on, 768
  Washington Office, (report: its function; two publications; Bulletin and Capitol Clinic), 637, 1170
  Whitaker and Baxter Advertising Campaign: See American Medical Association, National Education Program
  Woman's Auxiliary: See Woman's Auxiliary
AMETHOPTERIN
  toxicity reversal by citrovorum factor, [Schoenbach & others] *1558
AMINO ACIDS
  pattern in fetal and maternal plasma, [Crumpler] 1035—ab
AMINOPHYLLINE
  N N R., (Vitarine), 311
AMINOPTERIN
  toxicity reversal by citrovorum factor, [Schoenbach & others] *1558
  treatment of acute leukemia, [McCall] 315—ab; [Dacie] 585—ab
  treatment of leukemia in children, [Smith] 337—ab
p-AMINOSALICYLIC ACID: See Acid
AMITHIOZONE (conteben; myvizone; TB I-698; tibione)
  injection into pulmonary cavities, [Ebers] 1216—ab
  treatment of leprosy, [Johansen & Erickson] *989; [Ryrie] 1036—ab
  treatment of tuberculosis [Simmons] 952—ab
  treatment of tuberculosis discovered by Dr G Domagk, Italy, 1019
AMMONIUM COMPOUNDS
  persulfate, flour maturing agents, [Arnold] 874—ab
  sulfate, injected in stellate ganglion, in angina pectoris, [Stubbs] 1032—ab
  Tetraethyl—: See Tetraethylammonium
  thioglycolate in cold wave, temporary baldness due to, [Reiches & Lane] *305
AMOBARBITAL (AMYTAL)
  sodium as causative factor in prolonged insulin coma, [White] 1209—ab
AMPHEDROXYN
  Hydrochloride, N N R, (Lilly) 549
AMPHETAMINE: See also Methamphetamine
  state laws on, (Bureau report) 862
  treatment of barbiturate intoxications, [Rüshede] 351—ab
  treatment of narcolepsy, 358
d-AMPHETAMINE
  management of depressed patient, [Grahn] 1303—ab
AMPUTATION
  hindquarter (interinnominoabdominal) [Saint] 1203—ab
  in primary carcinoma of nail, [Russell] *19
  midleg, for gangrene in diabetics, results, [Silbert & Haimovici] *454
ANALGESIA: See Anesthesia
ANAPHYLAXIS: See Allergy
ANASTOMOSIS: See Arteries, Carotid; Duodenum; Esophagus
ANATOMY
  Morbid: See Pathology
ANDROGENS
  methyl testosterone, N.N.R., (Physicians Drugs) 549
  testosterone for incurable cancer of female genitalia, [Burger] 1131—ab
  testeosterone proprionate in oil, N.N.R., (Gold Leaf), 385
  testosterone propionate relation to prostatic cancer, [Brendler] 1207—ab
  testosterone treatment of pulmonary metastases of breast cancer, [Wolff] 878—ab
  testosterone treatment plus adrenal cortex extract of asthenia, France, 859
  treatment, Academy of Sciences of Ferrara discusses, 481
  treatment of advanced breast cancer, [Galton] 581—ab; (Ricklin] 1524—ab
  treatment of breast carcinoma, [Abramson] 491—ab; [Portmann] *513
  treatment of breast cancer metastatic to bone, [Garland & others] (Council report) *997
ANEMIA: See also Anemia, Pernicious
  erythroblastic familial (Cooley's), [Phillips] 582—ab
  hemolytic acute of Lederer-Brill type, [Van Bracht] 500—ab
  hypochromic, saccharated iron oxide intravenously, [Brown & others] *1084
  International Society of Haemotology discusses, 1197
  megaloblastic, hepatoenteropathy (liver cirrhosis), [Oliver-Pascual] 801—ab
  megaloblastic, vitamin B_{12}, folic acid, thymine, uracil and methyl group for, [Vilter] 951—ab
  sickle cell, aplastic crisis in, [Singer] 204—ab
  sickle cell, in white race, [Guyton] 1302—ab
  spherocytic, hereditary in Negro, [Butterworth] 1401—ab
  treatment, folic acid, [Hachner] 962—ab
ANEMIA, PERNICIOUS
  Castle's intrinsic factor, [Hall] 1214—ab
  complications: cancer of stomach, [Mosbech] 1133—ab
  hypoproteinemia in, [Schneiderbaur] 1525—ab
  subacute combined degeneration of spinal cord, 1221
  treatment, aureomycin, [Lichtman] 1308—ab
  treatment, folic acid, long term evaluation, [Schwartz] 419—ab
  treatment, vitamin B_{12} [Board] 1032—ab
  treatment, vitamin B_{12} and folic acid, [Schrumpf] 1039—ab
  treatment, vitamin B_{12}, folic acid, thymine, uracil and methyl in, [Vilter] 954—ab
  treatment, vitamin B_{12} for neuropathy in, [Fuld] 796—ab
ANESTHESIA
  automatic electroencephalographically controlled, [Mayo & others] *1081
  ether, 79
  ether, so-called convulsions, [Aigner] 966—ab
  explosion, safety in operating rooms, 811
  for tonsillectomy, 80
  intratracheal, granuloma of larynx after [Wattles] 1122—ab
  liver injury and repair after, [Ravdin] 1511—ab
  nausea and vomiting after, dimenhydrinate (dramamine) for [Rudolph] 1283—C
  spinal, bacterial meningitis after, [Keefer] 870—ab
  spinal, headache after, [Hunt] 1593—ab
  spinal, inadvisable in obstetrics, [Greenhill] 338—ab
  spinal, modern trends, [Hunter] 1129—ab
  spinal, or continuous caudal treatment of eclampsia, [Kennedy] 1120—ab
  spinal, sterilization of catheter, 211
  universal anesthesia frame, [Wells & Newton] *303
  vinyl ether and other, death following tonsillectomy, [Taylor] 1589—ab
ANESTHESIOLOGY
  American Board of: See American Board
  training in, for Greek physicians, 1489
  training in, New York, 558
ANEURYSM
  dissecting, of aorta, [Rider] 270—ab
  dissecting, of aorta, neurologic symptoms, [Moersch & Sayre] *1141
  perforation of aorta, [Sirota] 262—ab
ANGINA
  Agranulocytic: See Agranulocytosis, Acute
  Monocytic: See Mononucleosis, Infectious
ANGINA PECTORIS
  anginoid pain and, [Jervell] 208—ab
  exercise test in, [Raynaud] 587—ab
  in winter, 1323
  thyrotoxicosis and, [Somerville] 876—ab
  treatment, alcohol, 1225
  treatment, inject stellate ganglion with ammonium sulfate, [Stubbs] 1032—ab
  treatment, 100% oxygen, [Russek & others] *373
  treatment, sympathectomy, [Kux] 1037—ab; [*Evans & others*] *1432
  treatment, visammin and placebo effect; "daily report card" method, [Cattell] *891
  treatment, visammin (khellin) [Greiner] 1025—ab; [Armbrust] 1202—ab
ANGIOCARDIOGRAPHY: See Heart, roentgen study
ANGIOCHOLITIS: See Bile Ducts
ANGIOMATOSIS
  cause of separation of retina, [Heath] *1148
ANIMAL EXPERIMENTATION
  antivivisectionists move again, 689—E
  state laws on, (Bureau report) 866
  voters approve release of animals for research, Calif., 1384
ANIMALS: See also under names of specific animals as Cats; Dogs; Fish; Hogs, Horses
  Experimentation on: See Animal Experimentation
  for research, shortage of, Wisconsin, 1193
  plague-infected wild animals, [Link] *375
  rabies in, 1246—ab
  research, photos sought by National Society for Medical Research, 1578
ANNUAL Congress: See American Medical Association
ANOMALIES: See names of specific organs as Heart; Kidneys
ANOREXIA: See Appetite
ANOXEMIA: See Blood oxygen
ANOXIA. See Oxygen deficiency
ANTABUSE
  inscription of, in schedule A (poisonous substances), France, 256
  treatment of chronic alcoholism, [Marti-Granell] 1312—ab
ANTIBIOTICS: See also Aureomycin; Chloramphenicol; Penicillin; Streptomycin; Terramycin
  aerosols for respiratory infections, [Prigal & Molomut] *897
  aerosols nebulization, administered by inhalation, *32
  A M A Symposium on, [Herrell & Barber], *519, [Hunter] *521; [Freidberg] *527;
  [illegible]
  850—E
  [illegible] use, [Long] 586—ab
  detergent, treatment of osteomyelitis with tergitol, [Grace] 1591—ab
  erythrocytes source of, 1185—E
  excreted in breast milk; danger to infant? 1324
  neomycin, [Waksman] 712—ab
  research award by Commercial Solvents Corporation and Society of American Bacteriologists, 476
  treatment by mouth and vitamin absorption, 1225
  treatment of common cold, [Bloomfield] *292
  treatment of pneumonic, septicemic and bubonic plague, [Meyer] *982
  treatment, recent trends, [Kirby] *233
ANTIBODIES: See also Agglutinins
  production, relation to nutritional deficiency, [Balch] 312—ab
  Rh See Rh Factor
ANTICOAGULANTS: See Blood coagulation; *Dicumarol; Heparin*
ANTIDOTES
  for bromate neutralizers in home permanent waving kits, [Brunner] 1283—C
ANTIGENS: See also Antibodies
  inoculation and poliomyelitis in England and Wales in 1949, [Hill] 585—ab
  Rh: See Rh Factor
ANTIHISTAMINES: See Histamines
ANTI-INFECTIVES: See Sterilization, Bacterial
ANTI-LEWISITE, British: See BAL
ANTIMONY
  trivalent sodium antimony gluconate in [illegible] ab
  [illegible] m of Bogom-
  [illegible] Bacterial
  [illegible] ping, [Stirk] 207—ab
  treatment plus sulfonamides and antibiotics of plague, [Meyer] *982

ANTITHROMBIN
  plasma test to predict intravascular clotting, [Kay] 791—ab
ANTIVIVISECTION: See Animal Experimentation
ANURIA: See Urine, suppression
ANUS: See also Rectum
  Artificial: See Colostomy
  tuberculosis, streptomycin in [Martin] 496—ab
ANXIETY
  chorea or, (reply) [Kagan] 1226
  Neurosis: See Neurosis
AORTA
  Aneurysm of: See Aneurysm
  coarctation complicating pregnancy, 971
  coarctation, surgical therapy, [Humphrey] 1030—ab
  coarctation with distal rupture, [France] 715—ab
  homografts of, preserved in alcohol, [Paolucci] 1305—ab
  thoracic, arteriovenous fistula of aortic arch; successful treatment, [Proctor] *818
  transposition, angiocardiographic diagnosis [Castellanos] 1026—ab
AORTIC ARCH
  arteriovenous fistula, successful treatment, [Proctor] *818
AORTIC VALVE
  stenosis, surgery for, [Glover & others] *1054
APOMORPHINE
  treatment in chronic alcoholism, [de Morsier] 351—ab
APOPLEXY: See Brain hemorrhage
APPARATUS: See also Diathermy; Hearing Aids; Instruments; Sunlamps
  automatic electroencephalographically controlled anesthesia, [Mayo & others] *1081
  DeLorme table, for giving resistance exercise, [Mead] *458
  oxygen therapy, *25
  universal anesthesia frame, [Wells & Newton] *303
APPENDICITIS
  acute, during pneumoperitoneum, [Knoepp] 69—ab
  acute suppurative, complicating epidemic parotitis [Schaar] *1452
  diagnosis: seminal vesiculitis confused in, [Russell] 1204—ab
  in pregnancy, [van Assen] 1313—ab
APPENDIX
  perforation, spreading peritonitis after, [Eberle] 1133—ab
APPETITE
  anorexia nervosa, emergency leukotomy, Dublin, 944
APPLE Sauce, Libby's Junior Foods, 763
APRICOTS
  Libby's Junior Foods, 817
  Monarch Brand Dietetic Pack, 1092
ARACHNIDISM: See Spider bite
ARCHIVES of A M A.: See American Medical Association, journals (special)
ARGENTINE
  rules on physicians prescribing medical products, 946
ARKANSAS river basin, survey of, Colorado, 1191
ARMED FORCES: See also Army; Aviation, U S. Air Force; Korean War, Navy; *World War II*
  Armed Services Medical Regulating Office, (authority of new; hospital beds for armed forces) 1009
  Medical Advisory Committee, [Melling] *810
  endemic hepatitis in American troops in postwar Germany, [Paul] 797—ab
  hepatitis in recently tattooed service personnel, [Smith] *1074
  Inductees, roentgen examinations, 245
  Institute of Pathology, (Capt. Eaton deputy director), 1190
  medical officers, call of physicians to service, 186
  medical officers, doctor-draft registrants and volunteers, 935
  medical officers, policy on delay in call to active duty, *111
  medical officers, procurement for, 395—E; 650
  medical officers, regulations covering doctor draft, 768
  medical officers (former), status of, 937—OS
  medical officers, timetable for procurement of physicians, 693
  medical reserve situation: Defense Secretary Marshall's newest directive, 248; 851
  medical reserve officers, calling up, 320
  physicians *returning to, life insurance for,* 1571
  service in, for residents, 185—E
ARMS: See also Extremities; Fingers; Hand; Shoulder; Wrist
  arm lift-scapular pressure in artificial respiration, [Gordon & others] *1455
  wringer injury, [Everett] 794—ab
ARMY, UNITED STATES: See also Armed Forces; Aviation, U. S. Air Forces; Korean War; World War II
  consultants to go overseas in 1951, 1271
  doctor-draft registrants, 851
  Hospitals: See Hospitals
ARMY, UNITED STATES—Continued
  Inductees, drastic reduction in dental requirements, 398
  medical care of soldiers in Korea, 769
  medical company: new type' preventive medicine unit, 1101
  medical corps, functioning in the Far East, [Duncan] 1501—C
  medical draft commission deadline, 1382
  medical draft registrants, decentralize appointments for, 1271
  Medical Library, (future status; location) 398; (Association of Honorary Consultants) 398
  medical officers, better use of, 49
  medical officers (civilian), openings for, [Stimburis] 860—C
  medical personnel policy announced by, 321
  medical reserve officers volunteering for service, 9
  medical reserves, 1187
  medical reserves, "point system" for release, 1099
  Navy reserve officers on duty with, 1489
  officers (regular) 321
  physicians in service, 470
  reserve and national guard officers recalled, 50
  reserve officers, appointment of women doctors, 471
  reserve officers, physical fitness, 1187
  residency training program adopted by, after *World War II, value [Duncan] 1501*—C
  residents, [Nelson] 919—C
  Robinson (Paul I.) promoted, 189
  Society of U S Medical Consultants in World War II, meeting, 321
  specialists (women), involuntary recall of, 471
  Specialized Training Program, doctor draft law, 398; 399
  tests on-the-spot of drugs and medical equipment in Korea, 1572
  training program provided physicians in the emergency, 1382
ARRHYTHMIA: See also Auricular Fibrillation
  cardiac, 218—ab
  ventricular, procaine amide hydrochloride, N N R, (Squibb) 1465
ARRUGA LIRO, H., honored, 567
ARSENIC
  content of cigarets and tobacco smoke, [Daff] 1519—ab
ARSENICALS: See also Acetarsone
  cancer, [Frank] 500—ab
ARSENOXIDES
  to prevent transfusion syphilis, [Brock; Fussganger] 1312—ab
ART: See Physicians, avocations
ARTANE: See Trihexyphenidyl
ARTERENOL (non-epinephrine)
  assay of tumor, [Kofller] 1028—ab
  cardiovascular effects, [Bayer] 798—ab
  clinical response to, [Kappert] 717—ab
  epinephrine and, distinct entities, [Kositchek & Kabwin] *826; [Ronicke] 963—ab
  increased urinary output in pheochromocytoma, [Engel] 1408—ab
ARTERIES: See also Aorta; Arteriosclerosis; Blood Vessels; Ductus Arteriosus; Veins
  Aneurysm: See Aneurysm
  calcification (presenile) 359
  carotid, jugular vein anastomosis for mental retardation, [McKhann] 1403—ab
  cerebral, roentgen study, Egas Moniz address on, 1498
  Coronary: See also Angina Pectoris
  coronary disease, serum cholesterol and serum phospholipids in [Gertler] 789—ab
  coronary insufficiency (acute): subendocardial necrosis, [Horn] 574—ab
  coronary insufficiency (acute), use of anticoagulants, [Nichol] 583—ab
  coronary insufficiency and radioactive iodine, 812
  coronary insufficiency, anoxemia and exercise test for, [Stein] 707—C
  coronary insufficiency due to hemorrhage, [Master] 491—ab
  coronary insufficiency, effect of visammin on, [Best] 1512—ab
  coronary occlusion, anticoagulants for [Holten] 1525—ab
  Coronary Occlusion: See Thrombosis, coronary
  Coronary, Sclerosis: See Arteriosclerosis
  diseases (peripheral), intra-arterial histamine for, [Swann] 583—ab
  Embolism: See Embolism
  Fistula: See Fistula, arteriovenous
  iliac (common), arteriectomy, France, 859
  Inflammation: See Arteritis; Periarteritis
  pulmonary, massive hemorrhage, intra-arterial transfusions in, [Ciliberti & Dickler] *382
  Pressure in: See Blood Pressure
  transplantation for congenital cardiopathies, [Soulié] 963—ab
  uterine, rupture from twisted fibroid causing intra-abdominal hemorrhage [Kaye & Ficarra] *616
ARTERIOSCLEROSIS
  American Society for Study of, 476
  blood cholesterol levels and diet, 1006—E
  blood lipids and human atherosclerosis, [Gofman] 789—ab
  cholesterol intake and, 469—E
  coronary, choline in, [Morrison] 262—ab
  intravenous ether contraindicated for cardiac patients, 725
  Renal Disease: See Nephrosclerosis
  research on, USPHS, 322
  treatment, sympathectomy [DeBakey & others] *1227
  treatment, tests with antireticular cytotoxic serum, 1282
ARTERITIS: See also Periarteritis
  etiology: methylthiouracil, [Meyler] 1038—ab
ARTHRITIS: See also Gout; Rheumatism
  alcohol relation to, 1047
  Arthritis and Rheumatism Foundation (fellowship), 190; (campaign for funds), 855; 1576
  Atrophic or Chronic: See Arthritis, Rheumatoid
  changes of old age, 1420
  ergometers for measuring strength of hand grasp (grip), [Wainerdi] 619
  gonococcic, [Malhotra] 1036—ab
  Haverhill fever (epidemic arthritic erythema) [Morse] 958—ab
  Institute on, 248
  spondylarthritis in children, [Saenger] 577—ab
  Still's disease, 724
  symptomatic, in neoplastic diseases, [Holmes] 715—ab
  treatment, long wave diathermy, 358
  treatment, desoxycorticosterone acetate intramuscularly and ascorbic acid intravenously in chronic polyarthritis, 1107
ARTHRITIS, RHEUMATOID
  cardiac disease and, [Bradfield] 578—ab
  deformity in, prevention, [Kelly] 960—ab
  in swine: effect of cortisone and ACTH, [Doyle] 793—ab
  treatment, ACS serum, [Costa Bertani] 429—ab
  treatment, cortisone acetate, smaller (maintenance) doses, [Boland & Headley] *365
  treatment, cortisone and ACTH. [Holbrook] 871—ab; [Hench & others] *1327
  treatment, cortisone and ACTH, hypercholesteremia in, [Adlersberg & others] *909
  treatment, deoxycortone and ascorbic acid, [Bywaters] 271—ab
  treatment, desoxycorticosterone acetate and ascorbic acid, [Graham] 1121—ab
  treatment, gold, complicated by diabetes, 1602
  treatment, Speransky's spinal pumping, 975
  treatment, sulfur, 1017
  vitamin D intoxication in child, [Hyde] 1202—ab
ARTICLES
  request for reprints; use postal with detachable label, [Keitel] 1110—C
ARTIFICIAL Insemination: See Impregnation, Artificial
  Kidneys: See Peritoneum irrigation
  Pneumothorax: See Pneumothorax, Artificial
  Respiration: See Respiration
ASCITES
  confusion with omental cyst, [Beaven & Kerr] *306
  treatment, Crosby-Cooney technic using plastic tubing, [Parker & Breckler] *1091
ASCORBIC ACID: See Acid, ascorbic
ASPARAGUS
  Diet-Delight Brand, 1092
  odor of urine after eating, 1140
  Sacramento Brand Dietetic Pack, 549
ASPHYXIA: See also Carbon Monoxide poisoning, Suffocation
  resuscitation of newborn, 360
ASPIRATION
  tracheo-bronchial, in newborn, [Emerson] *613
ASSOCIATION: See also American Medical Association; Societies, Medical; list of Societies at end of letter S
  of American Medical Colleges (joint survey of medical education) *111; (Joint Committee on Medical Education in Time of National Emergency) 1095—E; 1111
  of Clinical Pathologists, England, 565
  of Military Surgeons, 1184—E
  of State and Territorial Health Officers', resolutions support A M A. opposition to compulsory sickness insurance, 852
ASTHENIA: See also Fatigue; Myasthenia
  after withdrawal of cortisone, [Sprague & others] *1345
  ergometers to measure strength of hand grasp (grip), [Wainerdi] 619
  neurointestinal, roentgenography of small intestine, Spain, 1499
  Pseudobulbar: See Myasthenia gravis
  treatment, testosterone and adrenal cortex extract, France, 859

ASTHMA
  allergy in, Paris, 331
  attacks, bronchi in, [Vallery Radot] 879—ab
  bacteriologic environment in chronic or repeated infections, [Prigal] 1585—C
  etiology, allergy to tobacco smoke in infant, a case report, [Rosen & Levy] *620
  food tests in [Leibowitz & others] *990
  International Congress on (2nd), 255
  treatment, ACTH, [Howard & others] *1347
  treatment, fever therapy, 1419
ASTIGMATISM, 726
ASTROCYTOMA
  cause of massive separation of retina, [Heath] *1148
  of cerebellum, [Mabon] 711—ab
ATHEROSCLEROSIS: See Arteriosclerosis
ATHLETICS: See also Exercise
  basketball permitted after rheumatic fever, 1323
  competition of youth, 200
  International Congress of Medical Aspects of Sport (8th), Italy, 200
  pain over tibia in athletes, 359
  skeletal injuries caused by sports, 197
  Swimming: See Swimming
ATMOSPHERE: See Air
ATOM, 1586
ATOMIC ENERGY: See also Radioactive Isotopes
  bomb attacks, precautions for, 1487
  bomb casualties, lecture on treating, Indiana, 54
  bombs, protecting against heat from, [Buettner] *737
  cancer research and nuclear studies, [Bruner] 583—ab
  courses in use of radioisotopes, 1387
  furnace begins operating at Brookhaven Laboratory, 473
  U S Atomic Energy Commission (Advisory Committee for Biology and Medicine) 53; (Red Cross contract with) 53; (Division of Biology and Medicine), 1187; (fellowships) 1381
  Warfare, medical aspects, Indiana, 190
ATROPHY: See also Liver atrophy
  Muscular: See also Dystrophy, muscular
  muscular progressive, cortisone for [Shy & others] *1355
ATROPINE
  effect on gastric functions, [Gill] 1122—ab
  treatment plus neostigmine sulfate for bite of black widow spider, [Holloway] 1305—ab
AUDIOMETERS
  Maico D-10, 315
  Microtone ADC, Model 53—C1, 1375
  pure tone, for screening purposes, minimal requirements for, (Council report), 465
AUDIOVISUAL AIDS: See Moving Pictures
AUREOMYCIN
  effect on coagulability of blood [Lasserand] 710—ab
  effect on intestinal flora, [Dearing] 1590—ab
  excreted in breast milk; danger to infant? 1324
  toxicity, large doses cause swelling of liver? 726
  toxicity: pruritus vulvae, [Behrman] *995
  toxicity; vomiting, milk to control, [Bartholomew] 495—ab
  Treatment. See also Actinomycosis; Amebiasis, Anemia, Pernicious; Brucellosis; Colitis, amebic; Diarrhea, Endocarditis; Granuloma inguinale, Herpes simplex, Influenza; Klebsiella pneumonia; Leprosy; Liver; Lymphogranuloma, Mouth; Plague; Poliomyelitis; Psittacosis; Relapsing Fever; Rickettsialpox; Stevens-Johnson Disease; Syphilis; Typhus; Vomiting; Whooping Cough
  treatment, alone or combined with penicillin in endocarditis, [Hunter] *524
  treatment, compared with chloramphenicol, [Werner] 792—ab
  treatment, evaluated, Denmark, 1583
  treatment, inhaling aerosols in sinorespiratory infections, [Prigal & Molomut] *897
  treatment of Brucella suis infection, failures, [Green & Stein] *380
  treatment of brucellosis; simultaneous use of aureomycin and dihydrostreptomycin, [Herrell & Barber] *519
  treatment, oral, and penicillin intramuscularly incompatible? 1419
  treatment, oral, bacterial flora in ulcerative colitis during, [Marshall & others] *902
  treatment, oral, in neurosyphilis, [Kierland] 1510—ab
  treatment plus chloramphenicol in plague, [Sokhey] 1214—ab
  treatment plus chloramphenicol in whooping cough, [Barbera] 1131—ab
  treatment, recent trends, [Kirby] *234
  treatment to prevent bacteremia in tooth extraction, [Roth] 1588—ab
AURICULAR FIBRILLATION
  associated with thromboembolism; continuous anticoagulant therapy, [Askey & Cherry] *97
AUROTHERAPY: See Gold Therapy
AUSCULTATION
  dorsal, in cardiovascular disorders, [Lian] 718—ab
  evidence of cardiac rupture, [Nuzum] 415—ab
AUTOAGGLUTININS: See Agglutinins
AUTOMATIC electroencephalographically controlled anesthesia, [Mayo & others] *1081
AUTOMOBILES
  accidents, childhood's greatest physical threat, [Dietrich] *1175; 1183—E
  drivers, physical examination of, state laws on, (Bureau report), 862
  driving and spine disorders, [Fishbein] 1208—ab
  special car to aid handicapped patients, New York City, 771
AUTOPSIES: See also Cadavers; Coroners; Medicolegal Abstracts at end of letter M
  state laws on, (Bureau report), 8[illegible]6
AVIATION: See also Altitude, high
  air ambulance activities, Norway, 705
  air travel and the cardiac patient, [May] 1402—ab
  Air Raids: See Air Raids
  effects of acceleration, [Rosenfeld] 1404—ab
  health measures, unification of, Belgium, 1108
  medical supplies dropped by parachute, 1383
  medicine, research at U of Illinois, 474
AVIATION, U. S AIR FORCE
  Aeromedical Panel of Air Force Scientific Advisory Board, 1012
  Boothby (W. M) at Randolph Field, 1383
  commission medical professional women, 321
  conference for consultants and command surgeons of, 769
  medical officers, regular corps examination for, 1101
  officers (former) status of, 937—OS
  School of Aviation Medicine will be divided, 471
  seeks ASTP and V-12 trained physicians, 52
AVITAMINOSIS: See Vitamins
AVOCATIONS. See Physicians, avocations
AWARDS: See Prizes
  for Military Service: See Korean War, Heroes; World War II, Heroes
AZOTEMIA: See Blood urea; Uremia

B

BCG Vaccine: See *Tuberculosis, immunization*
B L B Mask: See Masks
BABKIN, BORIS P., death, 856
BACILLEMIA: See Bacteremia
BACILLUS: See Bacteria
BACITRACIN
  treatment, inhaling aerosols in sino-respiratory infections, [Prigal & Molomut] *897
BACKACHE: See also Sciatica; Spine, intervertebral disk
  episacroiliac lipomas, 811
BACON
  Swift's Liver and Bacon, 763
BACTEREMIA
  brucellosis, aureomycin and dihydrostreptomycin used simultaneously for, [Herrell & Barber] *519
  in tooth extraction, aureomycin to prevent, [Roth] 1588—ab
BACTERIA: See also Staphylococcus; Tubercle Bacillus; etc under names of organs as Intestines; Pharynx
  Abortus Infection: See Brucellosis
  Colon Bacillus. See Escherichia coli
  environment in chronic or repeated infections, [Prigal] 1585—C
  Friedlander's: See Klebsiella pneumonia
  in Air: See Air disinfection
  in Blood: See Bacteremia
  Infection: See Infection
  International Congress of Microbiology (5th) at Rio de Janeiro August 17-24, 568
  Lactobacillus Casei Factor (Synthetic): See Acid, folic
  sensitivity to sulfonamide combinations, [Schweinburg] 793—ab
  subtilis, treatment of chronic typhoid carriers, [Vaichulis] 1304—ab
  Tularense Infection: See Tularemia
BACTERICIDES: *See Sterilization, Bacterial*
BACTERIOLOGY
  eye bacteriology laboratory, Canada, 1387
  Turkish Microbiology Congress (4th), 1392
BACTERIUM: See Bacteria
BAER Lectures: See Lectures
BAKERY GOODS
  Neuman's Salt Free, 763
BAL
  treatment of diffuse impairment of liver *parenchyma, [Janovics]* 1524—ab
  treatment of lead poisoning, [Bastrup] 960—ab
  treatment of neuronitis, [Nielsen] 788—ab
BALDNESS: See Alopecia
BALLOON
  tamponage for bleeding esophageal varices, [Sengstaken] 203—ab
BANDAGE: See Dressings
BANG, SOPHUS, death, 483
BANKS (therapeutic): See also Blood Transfusion; Blood Vessels; Bones
  testamentary disposition of dead bodies used for, 654
BANTHINE
  treatment of peptic ulcer, [Winkelstein] 1501—C
  trial, [Grimson] 1211—ab
BARBITURATES: See also Phenobarbital
  addiction, [Isbell] 1124—ab
  in blood, determination, clinical importance, 886
  in body fluids, identification [Selwyn] 271—ab
  increased sensitivity in anoxia, [Meyler] 1522—ab
  poisoning, amphetamine in, vs. nikethamide therapy, [Rishede] 351—ab
  poisoning, chronic, [Isbell] 710—ab
  poisoning, placenta barrier in, [Martland] 1203—ab
  state laws on, (Bureau report) 654; 862
BARFRED-Pedersen Prize: See Prizes
BARIUM
  enema to reduce intussusception in infants *and children, [Ravitch]* 1029—ab
BARNARD Lecture: See Lectures
BAROMETRIC PRESSURE: See Humidity
BASEDOW'S Disease: See Goiter, Toxic
BASIC SCIENCE
  courses, St. Mary's Hospital, San Francisco, 1102
  fellowships, Iowa, 1385
  graduate students in, 1095—E; (Joint Committee statement), 1113
  schools approved in U. S. and Canada, *114, *148
  schools, tuition fees, *129
  state laws (Bureau report), 863
BASKETBALL
  permissible after rheumatic fever? 1323
BATHS: See also Swimming
  Home Whirlpool Aerator for whirlpool bath, 1093
BATROW Neuromuscular Stimulator, Model A, 929
BATTLES: See Korean War
BCG Vaccination: See Tuberculosis, immunization, BCG
BEANS, Wax, Monarch Brand Dietetic Pack Cut, 1092
BEAUTY PREPARATIONS: See Cosmetics
BED Capacity: See Hospitals
  McKesson Respiraid Rocking Bed, 1181
  Rest See Convalescence
BEDPAN
  energy expended by patients on bedpan and commode, [Benton & others] *1443
BEDWETTING: See Urine incontinence
BEECH-NUT
  Strained Oatmeal, 763
BEEF
  Heinz Strained Vegetables and Beef, 549
BEES: See Honey
BEHAVIOR: See also Mental Hygiene; Personality
  juvenile delinquency, [Nicholson] *1538
  pattern in refugee population of 30,000, 1391
BELFIELD Lecture: See Lecture
BELGER, NIHAD RESHAD, resigns, Turkey, 1392
BELGIAN Red Cross: See Red Cross
  Society of Endocrinology organized 1108
BELL'S Palsy: See Paralysis, facial
BELLADONNA
  treatment, oral, of glaucoma, [Ullman] 67—ab
BELTONE Mono-Pac Model M Hearing Aid, 929
BENADRYL: See Diphenhydramine Hydrochloride
BENGOLEA, ADRIAN J., death, 946
BENODAINE: See Piperoxane
BENZAZOLINE (priscoline)
  treatment of acute poliomyelitis, [Smith & others] *213
BENZEDRINE: See Amphetamine
BENZENE
  gamma benzene hexachloride, N N R (description), 548; (Strasenburgh), 548
BENZODIOXAN
  test in diagnosis of pheochromocytoma, [Koffler] 1028—ab
BENZOHYDRYL Alkamine Ethers: See *Diphenhydramine Hydrochloride*
BENZYL ALCOHOL
  with phenobarbital sodium, N N R (Miller), 385
  with sodium ascorbate, N N R (Carlo Erba), 385
BEQUESTS: See Donations (cross reference), Wills
BERIBERI, [Youmans] *309
BERMUDA GRASS allergy, 437
BERYLLIUM
  beryllosis, [Nachtwey] 1210—ab
  [Kazanjian] 1407—ab
  579—ab
  pulmonary) near
  577—ab
  9—ab
  Disease: See Sarcoidosis

BETTER BUSINESS BUREAU exposure of quacks by metropolitan newspapers, 761—E
BEVERAGES: See Coffee; Milk; Water
  Alcoholic: See Alcohol
BEVERIDGE Plan: See National Service Plan (England)
BIB BRAND Orange Juice for Babies, 847
BICARBONATE of Soda: See Sodium bicarbonate
BIEMILLER, A. J, fancy package of untruths in *Congressional Record*, 934—E
BILE
  duodenal, in noncalculous infections of gallbladder and bile ducts, 198
  pigments, origin of, 1098—E
BILE DUCTS
  angiocholitis, functional disorders, stenosis infections, Congress on Gastroenterology discusses, 198; 199
  injuries, new repair for, 848—E
  stricture, operative management, [Lahey] 795—ab
BILHARZIASIS: See Schistosomiasis
BILIARY TRACT: See also Bile Ducts; Gallbladder; Liver
  hypotony, surgical treatment [Mallet-Guy] 1314—ab
  dyskinesia; diseases; roentgenography, Congress on Gastroenterology discusses, 198; 199
  migraine of biliary origin, surgery for [Mallet-Guy] 348—ab
BILLINGS Lecture: See Lectures
BILLS, Legislative: See Laws and Legislation
BIOCHEMISTRY
  new dimension to studies in, 978—ab
BIOLOGIC PRODUCTS: See also Antiserum; Vaccine
  WHO sets standards for 10, 1387
BIOLOGY
  Advisory Committee for, of Atomic Energy Commission, 53
BIOPSY: See also Liver; Uterus
  Gusberg special coning biopsy curet, 726
  program, report on, Ky., 770
  value in polyarteritis nodosa, 565
BIO-SORB Powder, N.N.R. (Ethicon), 385
BIRDS: See Ornithosis; Psittacosis
BIRDS EYE Frozen Concentrated Grapefruit Juice, 847
BIRTH: See Labor
  Multiple: See Twins
  Palsy: See Paralysis, spastic
  Premature: See Infants, premature
  Weight: See Infants, Newborn, weight
BIRTH CONTROL: See Contraception
BIRTHMARK: See Nevus
BISMUTH
  subsalicylate plus penicillin for syphilis [Pardo-Castello] 1510—ab
BITES: See Rat Bite Fever; Spider bite
BLACK serum test for cancer, [Teperson] 707—C
BLACK Widow: See Spider bite
BLADDER: See also Urinary System
  inflammation, methenamine mandelate in large doses in chronic cystitis, 812
  nonspecific trigonitis, 1048
  obstruction of vesical neck in women, transurethral resection for, [Emmett] 421—ab
  tumor, diagnosis [Berry] 1209—ab
BLASTOMYCOSIS
  keloidian, 1584
  treatment, Brazil, 1584
BLATT Memorial Lecture: See Lectures
BLEEDERS: See Hemophilia
BLEEDING: See Hemorrhage
BLINDNESS: See also Conjunctivitis, infectious acute in newborn; Vision
  compensation in partial loss of vision, 1419
  institute on, 218
  prevention, National Council to combat, launches research program, 1016
  rehabilitation of the blind, [Irvine] *1423
BLOOD: See also Hemo—; under Medicolegal Abstracts at end of letter M
  alcohol content, effect of sugar on, [Klein] 274—ab
  amino acid pattern in fetal and maternal plasma, [Crumpler] 1035—ab
  Bacteria in: See Bacteremia
  Bank: See Blood Transfusion
  barbiturates in: determination, clinical importance, 886
  bromide level, abnormal, 360
  calcium, hypercalcemia in osteolytic metastatic cancer of breast, [Swyer] 415—ab
  carbon dioxide combining power, 359
  Cells: See Erythrocytes
  chloride loss in surgical patients, parenteral potassium to prevent, [Lowe] 1406—ab
  cholesterol, hypercholesteremia during cortisone and ACTH therapy, [Adlersberg & others] *909
  cholesterol (serum) in blood donors, [Groen] 349—ab
  cholesterol (serum) in health and in coronary disease, [Gertler] 789—ab
  cholesterol levels and diet, 1006—E
  Circulation: See also Blood volume; Vasomotor Mechanism
  circulation (return), mercurial diuretic intravenously effect on, [Kartun] 426—ab
  circulation, oximetric determination, [Callebaut] 717—ab

BLOOD—Continued
  circulation, reflexes modifying, [Peterson] 1512—ab
  circulation (renal) and life stress, [Pfeiffer] 1514—ab
  circulation, Subcutaneous Blood Flow in the Bat (film review), 1115
  Clot: See Blood coagulation; Thrombophlebitis; Thrombosis
  Clot, Intravenous: See Phlebothrombosis
  coagulants, treatment of recent phlebitis, [Olivier] 961—ab
  Coagulation: See also Blood prothrombin
  coagulation and postoperative thrombosis, [Ochsner] 203—ab
  Coagulation, Anticoagulants: See also Dicumarol; Heparin
  coagulation, anticoagulants as cause of hemorrhage, 1166—E
  coagulation, anticoagulants in cardiac infarction, [Rose] 208—ab
  coagulation, anticoagulants in coronory occlusion, [Holten] 1525—ab
  coagulation, anticoagulants in venous thrombosis, [Zannini] 1311—ab
  coagulation, anticoagulants, therapy, fundamental consideration, [Jaques] 1105—ab
  coagulation, anticoagulants, use in acute coronary insufficiency, [Nichol] 583—ab
  coagulation, anticoagulants used continuously for thromboembolism with auricular fibrillation, [Askey & Cherry] *97
  coagulation, aureomycin effect on [Lasserand] 710—ab
  coagulation, clotting tests before tonsillectomy, 1139
  coagulation, plasma antithrombin test to predict intravascular clotting, [Kay] 791—ab
  coagulation problems, International Society of Haemotology discusses, 1197
  coagulation, rutin effect on, [Matis] 1314—ab
  Donors: See Blood Transfusion
  Dyscrasia: See also Agranulocytosis, Acute; Anemia, hemolytic; Erythroblastosis, Fetal; Leukemia; Polycythemia
  dyscrasia, familial hemopathy, National Congress of Internal Medicine discusses, 566
  dyscrasia, plasmacytosis due to sulfadiazine, [Robertson] 1509—ab
  factor in disseminated lupus erythematosus, [Haserick] 576—ab
  Fats See also Blood lipids
  fats, variations after prolonged treatment with ACTH, Italy, 1107; 1393
  Flow: See Blood circulation
  formation, extramedullary, myeloid metaplasia, [Block] 413—C
  formation, iron metabolism: hematopoiesis after phlebotomy, [Finch] 1123—ab
  forming tissue and ionizing radiation, 1182—E
  Groups: See also Rh Factor
  groups, hemolytic disease in newborn due to ABO incompatibility, [Seigneurin] 1132—ab
  groups, new, [Van Loghem] 349—ab
  groups, pilot typing program at Wayne U., 1385
  groups, tests for RH factor and blood type, 286
  groups, use in human racial classification, 765—E
  Hematology Research Foundation fellowships, Illinois, 474
  Hemoglobin: See Hemoglobin
  inclusion phenomenon in lupus erythematosus, [Berman] 263—ab
  Infection of Blood: See Bacteremia
  Injection of Whole Blood or Its Derivatives: See Blood proteins; Blood Transfusion; Hemotherapy
  International Society of Hematology, (3rd congress), London, 1197
  iodine, clinical significance, 384—ab
  iodine, use of protein-bound iodine in goiter, [Harsha] 956—ab
  Irradiated. See Blood, ultraviolet irradiated
  ketone levels in diabetics during stress, [Hinkle] 580—ab
  Lipids: See also Blood fats
  lipids and human atherosclerosis, [Nielsen] 789—ab
  Loss of. See Hemorrhage
  Menstrual: See Menstruation
  oxygen, anoxemia and exercise test for coronary insufficiency, [Stein] 707—C
  oxygen, hypoxemia in electroshock treatment, [Holmberg] 963—ab
  oxygen, Eh measurements: mental changes in chronic anoxemia, [Williams] 333—C
  penicillin concentration after intramuscular and subcutaneous use, [Søbye] 351—ab
  penicillin concentration after large oral doses [Bunn & others] *1540
  phosphate (plasma) levels fall through action of insulin, 1394
  phospholipids in health and in coronary disease, [Gertler] 789—ab
  picture in bacterial endocarditis treated with penicillin, [Dammert] 1311—ab
  Plasma. See various subheads under Blood; Blood Transfusion; Serum

BLOOD—Continued
  Platelets: See Purpura thrombopenic
  potassium, clinical symptoms of, hyper- and hypopotassemia [Hoffman] *1157
  potassium, deficiency in surgical patients, [Marks] 953—ab
  potassium, hypopotassemia in diabetic coma, [Story & Root] *86
  Preservation: See Blood Transfusion, blood bank
  Pressure: See BLOOD PRESSURE
  processing laboratories (mobile) at Harvard, 910
  proteins, concentrated human serum albumin in nephrosis, [Leutscher] 790—ab
  proteins, hypoproteinemia in pernicious anemia, [Schneiderbaur] 1525—ab
  proteins, nutritive value of plasma stored at room temperature, [Allen & others] *1073
  proteins, plasmacytosis and hyperglobulinemia from sulfadiazine, [Robertson] 1509—ab
  Prothrombin: See also Blood coagulation
  prothrombin, heparin tolerance (modified Waugh-Rudick test) [Soulier] 1525—ab
  prothrombin, hypoprothrombinemia from prolonged use of sodium salicylate, 812
  pyruvic acid level, in disturbed carbohydrate metabolism in diabetes, 1394
  Section on Human Blood Products, appoint chief: Dr. John T. Tripp, 53
  Serum: See various subheads under Blood; Blood Transfusion, Serum
  sludged after severe burns, [Brooks] 1206—ab
  sodium salicylate, prolonged use have deleterious effect on? 812
  specific gravity, copper sulfate method for, 1223
  subcutaneous nodules induced in rheumatic fever with, [Massell] 422—ab
  Sugar: See also Diabetes Mellitus
  sugar and the liver, 1181—ab
  sugar, exhaustion in young business executive, [Portis & others] *1162
  sugar (fasting) level after cortisone [Sprague & others] *1342
  sugar, forms of hyperglycemia, [Wilder] *1235
  sugar, insulin tolerance tests in 3 constitutional types, [Winkler] 1522—ab
  sugar levels and phosphoric esters of thiamine, 1394
  sugar; petit mal epilepsy, 724
  sugar, vitamin E and, [Levens] 1312—ab
  Tests: See Blood groups; Syphilis serodiagnosis; Tuberculosis diagnosis
  Transfusion: See BLOOD TRANSFUSION
  Types: See Blood groups
  ultraviolet irradiated plasma, fatal virus hepatitis in infant 3 months, [Lipman] *1090
  ultraviolet irradiated plasma to protect against virus hepatitis, 511
  ultraviolet irradiated plasma, viral hepatitis due to, [Rosenthal & others] *224; [Barnett & others] *226; [James & others] *228; 241—E
  urea, creatinine relation to nonprotein nitrogen in azotemia, [Gaberman & others] *1216
  Vessels: See BLOOD VESSELS
  Volume: See also Blood circulation
  volume determinations in surgery, [Beling] 497—ab
  volume (plasma) and sodium chloride administration [Aquilina] 1591—ab
  Vomiting of: See Hematemesis
BLOOD PRESSURE
  arm and thigh, establishing correlation, 484
  arterial, in patent ductus arteriosus, [Taylor] 580—ab
  low diastolic, in young patients, 512; (reply), [Pitesky] 1140; [Wilburne] 1602
  low, postural hypotension, 1226
  psyche and, [Palmer] *295
  readings, blood pressure cuff placed directly over shirt sleeve, [Fletcher] 20—C
BLOOD PRESSURE, HIGH: See also Nephrosclerosis, arteriolar
  caffeine effect on, [Sebok] 1409—ab
  conditioned reflexes and, [de Carvalho] 74—ab
  emotional factors in, [Murphy] 797—ab
  essential, mental stress tests and personality surveys in, [Palmer] *295
  etiology: life stress and renal circulation, [Pfeiffer] 1514—ab
  etiology: pheochromocytoma, 396—E
  etiology: pheochromocytoma, diagnosis, [Kofler] 1028—ab
  etiology, pheochromocytoma successfully removed with aid of piperoxan, [Kositchek & Kabwin] *826
  in a young man, (replies) [Lam; Tilman; Allen & Estes] 888
  pulmonary changes in uremia, [Bass] *819
  reading of more than 300, 1139
  retinal changes in, [Bechgaard] 877—ab
  surgical treatment, bilateral adrenalectomy, [Green & others] *439
  surgical treatment, lumbodorsal sympathectomy, [Simeone] 1308—ab
  surgical treatment of portal hypertension, [Longmire] 1207—ab

BLOOD PRESSURE, HIGH—Continued
  surgical treatment, sympathectomy masks peptic ulcer symptoms, [Steinmann] 1314—ab
  thyroid function in, [Thompson] 872—ab
  treatment by fasting 285
  treatment, dibenamine, [Wunsch] 1511—ab
  treatment, cortisone, [Perera] 580—ab
  treatment hexamethonium bromide, [Campbell] 1592—ab
  treatment in general practice, [Smith] 430—ab
  treatment, Kempner rice diet, [Williamson] 1030—ab, [Dole] 1513—ab
  treatment, medical sympathectomy with methonium compound England, 776, [Turner] 1310—ab, [Saville] 1311—ab
  treatment, nephrectomy cures, [Burkland] 794—ab
  treatment, procaine in honey, [Beckmann] 428—ab
  treatment, salt-free diet, [Allen] 64—C; [Kraus] 1586—C
  treatment, veratrum viride, advise caution in use of, [Fries] 1023—C
  water softeners detrimental to patients with, 726
BLOOD TRANSFUSION
  alkali-plasma transfusion, [Bucher] 880—ab
  apparatus, danger of brass stopcocks, 726
  blood banks, A M A Committee on, (report) 188—OS, (cooperates in national blood procurement) 550—E, (Cost of mass typing; Chicago's "walking blood bank") [Ivy] 780—C, (comment by chairman of A M A committee) [Larson] 780—C; (report of meeting approved by Board of Trustees) 695, 1377—E, 1473; 1474
  blood banks, American Red Cross, (to administer Atomic Energy blood separation research) 53 (Dr Russell L Haden appointed to, 1016; (expanded program; plans to July 1951) 1571
  blood banks, mobile blood-processing laboratories, at Harvard 940
  blood banks, state laws on, (Bureau report), 867
  blood donors, dangerous universal, [Ervin] 418—ab
  blood donors, health of after repeated donations, [Pulitano] 1523—ab
  blood donors, serum cholesterol level in, [Groen] 349—ab
  complications: pulmonary edema, 1046
  exchange, in erythroblastosis fetalis [Brancato] 575—ab
  homologous serum hepatitis, 241—E
  homologous serum jaundice and dried pooled serum, 482, [Runyan & others] *1065
  intra-arterial, in hemorrhagic emergencies, [Ciliberti & Dickler] *382
  jaundice and plasma storage, [Allen & others] *1070
  sequels (late), [Lacomme] 588—ab
  shock due to irregular agglutinins in, [Steinman] 880—ab
  substitution, in erythroblastosis, [Molony] 422—ab
  transmission of syphilis by, arsenoxides to prevent [Brock, Fussganger] 1312—ab
  transmission of viral hepatitis by ultraviolet irradiated plasma [Rosenthal & others] *224 [Barnett & others] *226; [James & others] *228, 241—E; [Lipman] *1090
BLOOD VESSELS See also Aorta; Arteries; Cardiovascular System; Vasomotor System, Veins
  bank established, Calif, 1576
  changes in nodular goiters, [Ratzenhofer] 589—ab
  circulatory changes in feet after lumbar sympathectomy, [Lynn] 499—ab
  Diseases See also Arteriosclerosis; Cardiovascular Disease, Phlebitis; Varicose Veins
  disease (hypertensive) cortisone for, [Perera] 580—ab
  disease (peripheral), ergot alkaloids in, [Eichler] 1038—ab
  disease, sympathectomy in, evaluated, [DeBakey & others] *1227
  lack of return of vascular tone in feet after sympathectomy, [Lynn] 500—ab
  lesions produced with desoxycorticosterone, [Revault] 73—ab
BLOODLETTING See Venesection
BLUE CROSS PLANS· See Hospitals, expense insurance
BOARD: See under specific names as American Board State Board
  of Thoracic Surgery (officers; certificates; requirements), *179
  of Trustees. See American Medical Association
BOATS. See Ships
BODY
  Build See Constitution
  Dead See Autopsies; Cadavers, Undertakers
  Fluids: See Fluids, body
  Growth of See Growth
  Organs of. See Organs, Viscera
  Position of: See Posture
  Temperature· See Fever; Temperature, Body
  Weight See Infants, weight; Obesity under specific organs as Adrenals; Brain
BOECK'S Sarcoid See Sarcoidosis
BOGOMOLETS ANTIRETICULAR CYTOTOXIC SERUM
  treatment of rheumatoid arthritis and metastatic breast cancer, [Costa Bertani] 429—ab
  treatment of schizophrenia and arteriosclerotic dementia, Columbia, 1282
BOLIVIA
  general notes on the country, 258
BOMBS
  Atomic See Atomic Energy
BONE MARROW
  disease, myeloid metaplasia, [Block] 413—C
  in diagnosis of histoplasmosis, [Pratt] 264—ab
  lupus erythematosus inclusion phenomenon, [Berman] 263—ab
  pancytopenia due to mesantoin, [Davies] 345—ab
  sternal and spinal process marrow compared, [Polson] 418—ab
BONES See also Orthopedics; Osteo—; Ribs; Spine, under names of specific bones
  Atrophy. See Osteoporosis
  Bank (film review), 202
  bank using frozen bone in orthopedic surgery, [Leonard] 1213—ab
  bony spike compressing optic nerve causes failing vision, [Falconer] 207—ab
  cancer, metastatic from breast, roentgen and steroid hormone therapy, [Garland & others] (Council report), *997
  cancer (metastatic), hypercalcemia in [Swyer] 415—ab
  changes in leukemia, [Hasbun] 1216—ab
  effects of hypervitaminosis on fetal mouse, London, 776
  Epiphyses: See Epiphyses
  Fracture: See Fractures
  Fragility: See Fragilitas ossium
  grafts as retrosternal support in funnel chest, [Wahren] 1311—ab
  grafts, preservation for use in surgery, [Sicard] 502—ab
  necrosis (aseptic), Medicosurgical Society discusses, 1393
  pseudocystic disease, [Jacobsen] 578—ab
  Tuberculosis· See Spine, tuberculosis
BOOKS· See also Journals; Library; Literature; Book Notices at end of letter B
  medical information exchange for Argentina, 946
  medical, Philippines needs, 58
BOONE, JOEL T, retires, 1382
BOOTHBY, W. M, at Randolph Field, Texas, 1383
BORCHERDT Malt Soup Extract Powder, Cocoa Flavored, 1092
BORDEN Award See Prizes
BORIC ACID See Acid, boric
BORNHOLM Disease. See Pleurodynia, Epidemic
BOTALLO'S Duct: See Ductus Arteriosus
BOTTLES See also Labels
  chemical bottle cleaner, babies deaths caused by, 1576
BOTULISM
  type E and fish-borne, due to home-pickled herring, [Dolman] 712—ab
BOURNEVILLE'S Disease See Sclerosis, tuberous
BOWEL Movement See Feces
BOWELS See Intestines
BOY SCOUTS
  medical care of, 1950 jamboree at Valley Forge, Pa, 941
BRAIN See also Cerebellum; Meninges; Nervous System
  abscess conservative surgical therapy, [Mount] 1306—ab
  abscess, syndrome of congenital cardiac anomaly and [Arana Iniguez] 427—ab
  cerebral cortex electrocoagulation in epilepsy, [Verbeek] 501—ab
  Disease See also Epilepsy
  disease dissecting aneurysm of aorta, [Moersch & Sayre] *1141
  disease, stellate block for, [Naffziger] 1120
  electroencephalogram, automatic controlled anesthesia in abdominal surgery, [Mayo & others] *1081
  electroencephalograph, manufacturers, 512
  electroencephalographs, direct reading, minimal requirements (Council report), 465
  electroencephalography in diagnosis of brain tumors, [Little] 494—ab
  examination after electric shock treatments plus subshock doses of insulin, 1139
  fatal complication after electroshock, [Schulte] 501—ab
  Hemorrhage: See also Meninges hemorrhage
  hemorrhage and cerebral embolus, 1064—ab
  hemorrhage, cervical sympathetic block with procaine for, 1533
  hemorrhage, hazard in use of anticoagulants in cerebral thrombosis and embolism, 812
  hemorrhage followed by diabetes mellitus, 1048
  hemorrhage (nontraumatic), [Ley] 1314—ab
  Inflammation. See Encephalitis
  surgery, carotid-jugular anastomosis for mental retardation, convulsions, etc [McKhann] 1403—ab
BRAIN—Continued
  surgery, Effects of Hemidecortication in the Dog, (film review), 868
  surgery, emergency leukotomy, Dublin 941
  surgery, leukotomy, uremic and trophic deaths after, [McLardy] 72—ab
  surgery, lobotomy in psychopathy, [Ferey] 800—ab
  surgery, excision of cortical focus in epilepsy, electrocorticography, [Guillaume] 800—ab
  surgery, prefrontal leukotomy, address by Egas Moniz, 1498
  surgery, prefrontal leukotomy, follow-up of 330 cases [Stengel] 1520—ab
  surgery, prefrontal leukotomy indicated in schizophrenia, 360
  surgery, psychosurgery [Burlingame] *1367
  surgery, unilateral prefrontal lobotomy for intractable pain, [Scarff] 581—ab
  Syphilis See Neurosyphilis
  tumors, Egas Moniz on cerebral arteriography in locating, 1498
  tumors, electroencephalography in diagnosis of, [Little] 494—ab
  tumors, fluorescein diagnosis, [Moore] 1517—ab
  tumors, radioactive diiodo-fluorescein diagnosis [Davis & others] *1424
  tumors, irradiation for [Peirce] 1517—ab
  tumors, sudden sensation of rotation of objects sign of? 1326
  weight (comparative) of white, yellow and negro races 811
BRAIN, RUSSELL, article in *British Medical Journal*: Genius and Psychosis, 692—E
BRASS stopcocks, danger in transfusion apparatus, 726
BREAD
  wheat, Cellu Brand, 763
BREAST
  cancer and estrogenic therapy, [Lamar] 1110—C
  cancer (advanced) androgen therapy in, [Galton] 584—ab; [Ricklin] 1524—ab
  cancer and sex hormones, [Abramson] 494—ab
  cancer, classification, criteria of incurability and treatment, [Portmann] *513; (correction) 701
  cancer, estrogens for, 1323
  cancer, hypercalcemia in osteolytic metastases, [Swyer] 415—ab
  cancer metastases, ACS serum for, [Costa Bertani] 429—ab
  cancer, milk factor in, [Horne] 1307—ab
  cancer, metastatic to bone, roentgen and steroid hormone therapy, [Garland & others] (Council Report), *997
  cancer, pulmonary metastases, testosterone for, [Wolff] 878—ab
  cancer treated by ophorectomy, [Raven] 498—ab
  cysts in infants, 1525
  excision, pregnancy after mastectomy, 286
  Feeding· See Infants, feeding
  gangrene (streptococcic), streptomycin for, [Marcus] 1035—ab
  greenish discharge from, 1326
  inflammation, etiology of puerperal mastitis, [Muth] 1409—ab
  Milk See Milk, human
  Paget's disease of nipple, 1048
  tumors new growths in infants, 1535
  underdeveloped in woman of 35, 1601
BREATHING. See Inhalation; Respiration; Snoring
BRECK JOHN H Inc, cosmetic preparations accepted by A M A Committee, 1004
BRICKNER Lecture. See Lectures
BRIGHT S Disease See Nephritis
BRITISH See also Royal
  Anti-Lewisite: See BAL
  Government, National Health Service: See National Health Service
  Medical Association, (Annual representative meeting), 62, 1279
  Medical Journal See Journals
BRITISH COLUMBIA, University of: See University
BROADCASTING: See Radio, Television
BROCKMAN Therapeutic Exerciser, 1375
BROMATE
  sodium, danger of poisoning from in home cold permanent waving kits, 397—E, (antidotes for) [Brunner] 1283—C
BROMIDE
  abnormal level in blood, 360
BROMO-SELTZER
  abnormal blood bromide level, 360
BRONCHIECTASIS
  in children, [Chattas] 587—ab
BRONCHODILATOR
  nebulization of drugs for inhalation, *32
BRONCHOSCOPY
  in pulmonary tuberculosis 1262—E
BRONCHUS See also Bronchiectasis; Broncho-
  aspiration after tonsillectomy, [Steele] 68—ab
  cancer, 410; [Beeler] 492—ab
  cancer invading the vein, ligate superior vena cava for, [Strahberger] 1525—ab

BRONCHUS—Continued
in asthmatic attack, [Vallery-Radot] 870 —ab
secretion, cytologic diagnosis of lung cancer, [Farber & others] *1
tuberculo [illegible] pul-
monary [illegible] —ab 714
tuberculo [illegible]
—ab; [illegible]
tuberculous lesions in children, [Wissler] 1315—ab
vitamin A deficiency effect on, [Youmans] *35
BRUCELLOSIS
cause habitual abortion? 80
Inter-American Congress on, Nov. 6-10, 560; 1274
intradermal reactions to Brucella antigens; relation to multiple sclerosis, [Kyger] 1022 —C
melitococcic spondylitis, 482
treatment p-aminosalicylic acid and its calcium salt, Italy, 1498
treatment, aureomycin, [Stoffel] 1595—ab
treatment, aureomycin and dihydrostreptomycin simultaneously, [Herrell & Barber] *519
treatment, aureomycin, failures, [Green & Stein] *380
treatment, aureomycin, Turkey, 411
treatment, chloramphenicol in acute cases, [Knight] 575—ab
treatment, stock vaccine and autovaccine, streptomycin combined with sulfadiazine, aureomycin and chloramphenicol, Italy, 1107
treatment, streptomycin, sulfadiazine and penicillin combined, [Anglesio] 1312—ab
BUBBLES
in Christmas tree lights; danger from drinking fluid, 1601
BUBO
Climatic: See Lymphogranuloma, Venereal
BUBONIC PLAGUE: See Plague
BUCCAL Cavity: See Cheek
BUETTNER aluminum suit, to protect against heat from fire, [Buettner] *737
BULLETIN, A.M.A.'s Washington's Office two publications, report of, 637
BUNKIN SUIT
standard, to protect against heat from fire, [Buettner] *737
BUREAU, A.M.A.: See American Medical Association
BUREAUCRACY
psychoanalytic aspects, [Sperling] 423—ab
BURIAL: See Cremation
BURNS
effects of extreme heat on man, [Buettner] *732
exudate losses in burned patients, [Moore] 953—ab
severe, sludged blood after, [Brooks] 1206 —ab
symposium on, Washington, D. C., 559
treatment, cortisone-active material, [Crassweller] 959—ab
treatment, dressing and skin grafting for extensive burns, [Denman] 206—ab
treatment, electrolytes in shock, especially sodium, [Rosenthal & Tabor] 413—C; [Hurley] 1502—C
X-ray (severe) during nailing of fracture, [Küntscher] 274—ab
BUSINESS
executive, forced retirement at 65, [Unger] 1502—C
executive (young), exhaustion in, [Portis & others] *1162
BUTTERMILK, how to neutralize the effect of penicillin on milk, 726

Book Notices

Accounting
Handbook on Accounting, Uniform Hospital Statistics and Classification of Accounts, 508
Actinomycetes, Their Nature, Occurrence, Activities and Importance, [Waksman] 505
Adaptation Syndrome
On Experimental Morphology of Adrenal Cortex, [Selye & Stone] 1530
Physiology and Pathology of Exposure to Stress, [Selye] 1414
Adenine Nucleotides
Biological Actions of Adenine Nucleotides, [Green] 720
Adrenals
On Aetiology of Eclampsia with Special Reference to Adrenocortical Hormones, [Parviainen & others] 1042
On Experimental Morphology of Adrenal Cortex, [Selye & Stone] 1530
Aetios of Amida: Gynaecology and Obstetrics of the VIth Century, A.D., [Ricci] 1319
Africa
Schistosomiasis in South Central Africa: Clinico-Pathological Study, [Gelfand] 1220
Air blast
Experimental Study on Air Blast Injuries, [Clemedson] 357

Book Notices—continued
Alcoholism
l'Alcoolisme: Problemes medico-sociaux, problemes economiques, [Perrin] 436
Alexander, F., Psychosomatic Medicine: Its Principles and Applications, 882
Alkaloids: Chemistry and Physiology, [Manske & Holmes] 435
Allen, C., Sexual Perversions and Abnormalities: Study in the Psychology of Paraphilia, 282
Allen, W. Y., Creative Nursery Center; Unified Service to Children and Parents, 721
Allende, I. L. C., and Orias, O., Cytology of Human Vagina, 1530
Allergy
Experimental Anaphylactic Iridocyclitis, [Foss] 436
Die [illegible] Grundlagen der [illegible]
What [illegible] it It [Swartz] 596
Alpatov, M., Russian Impact on Art, 1318
American Academy of Orthopaedic Surgeons Instructional Course Lectures, [Blount] 723
American Cancer Society, Cytologic Diagnosis of Cancer, 75
Cancer: Manual for Practitioners, 806
American College of Physicians, Postgraduate Gastroenterology, [Bockus] 801
American Family: Factual Background, 1413
American Goiter Association, Transactions of 1949 Annual Session, 1528
American Heart Association, Proceedings First National Conference on Cardiovascular Diseases 1950, 1599
American Hospital Association, Handbook on Accounting, 508
Hospital Nursing Service Manual, 77
Manual: Procedures and Layout for the Infant Formula Room, 1135
American Medical Association, Council on Medical Service, Voluntary Prepayment Medical Care Plans, 1131
Council on Pharmacy and Chemistry, Annual Reprint of Reports, 1949, 1217
Handbook of Physical Medicine and Rehabilitation, 353
New and Nonofficial Remedies, 1950, 1217
Questions and Answers, Volume 3, [Hammond] 280
Voluntary Prepayment Medical Care Plans, 1131
American Pharmaceutical Association, National Formulary IX, 1531
American Red Cross
History, [Dulles] 1415
Home Nursing Textbook, 1416
Amino Acids
Cold Spring Harbor Symposia on Quantitative Biology, 883
Ammonium
Surface-Active Quaternary Ammonium Germicides, [Lawrence] 282
Among the Doctors, [Cox] 1045
Amputation Prosthetic Service, [Daniel] 353
Amsden, J. P., Physical Chemistry for Premedical Students, 1528
Anatomy: See also Pathology; Physiology
Comparative Anatomy and Physiology of the Larynx, [Negus] 805
Illustrations from Works of Andreas Vesalius, [Saunders & O'Malley] 1043
Taschenbuch der Anatomie, [Voss & Herrlinger] 1045
Textbook of Anatomy and Physiology, [Anthony] 1416
Textbook of Anatomy and Physiology, [Francis & Knowlton] 967
Anderson, B. E., Facilitation of Interstate Movement of Registered Nurses, 284
Anderson, C. M., Saints, Sinners and Psychiatry, 1412
Anesthesia
Aspects actuels de l'anesthésiologie, [Dallemagne] 594
First Anesthetic: Story of Crawford Long, [Boland] 972
Andrus, W. DeW., Advances in Surgery, 356
Anthony, C. P., Textbook of Anatomy and Physiology, 1416
Antibiotics
Les thérapeutiques antibiotiques des maladies infectieuses, [Benhamou] 973
Penicillin and Streptomycin in Treatment of Infections, [Keefer] 808
Antibodies
Production of Antibodies, [Burnet & Fenner] 973
Anxiety
Anxiety in Pregnancy and Childbirth, [Klein & others] 356
Meaning of Anxiety, [May] 971
Arabic Contributions to Medicine, [Khairallah] 885
Argentinian Congress of Proctology, Colitis ulcerosa grave, 807
Armstrong, D. B., chairman, & others, Biological Foundations of Health Education, 970
Arnulf, G., Chirurgie artérielle: Techniques-indications-résultats, 807
Art
Jewish Artists of the 19th and 20th Centuries, [Schwarz] 210
Russian Impact on Art, [Alpatov] 1318
Art of Real Happiness, [Peale] 1134
Arteries
Chirurgie artérielle, [Arnulf] 807
Les maladies des coronaires: L'Infarctus du myocarde, l'insuffisance coronarienne, [Laubry & Soulié] 1318
Management of Peripheral Arterial Diseases, [Samuels] 1041
Arteriosclerosis
Thrombosis in Arteriosclerosis of Lower Extremities, [Edwards] 722
Arthritis
Manual of Rheumatic Diseases, [Holbrook & Hill] 967
Massage reflektorischer Zonen in Bindegewebe bei rheumatischen und inneren Erkrankungen, [Leube & Dicke] 1598
Pathology of Articular and Spinal Diseases, [Collins] 721
Rheumatic Diseases, [Kersley] 881
Arthropathies: Handbook of Roentgen Diagnosis, [De Lorimier] 210
Ashford, M., Trends in Medical Education: New York Academy of Medicine Institute on Medical Education, 1947, 882
Asphyxia Neonatorum: Its Relation to the Fetal Blood, Circulation and Respiration and Its Effects upon the Brain, [Windle] 972
Association for Research in Nervous and Mental Diseases, Multiple Sclerosis and Demyelinating Diseases, 1410
Asthma
Management of Patient with Severe Bronchial Asthma, [Segal] 282
Athletics
Individual Sports for Men, [Shaw] 802
Atlas
Atlas der Haut-und Geschlechtskrankheiten, [Frieboes] 505
Atlas of Electrocardiography, [Dressler & Roesler] 355
Medical Diseases of the Kidney, [McManus] 506
Microscopic Diagnosis of Human Malaria: Short Descriptive Atlas of Thick Film Diagnosis, [Field] 1138
Atomic Energy: See also Radioactivity
Pocket Encyclopedia of Atomic Energy, [Gaynor] 971
U. S. Atomic Energy Commission, Seventh Semiannual Report, January, 1950, 881
Autobiography: See Physicians
B.C.G. Vaccination in Theory and Practice, [Irvine] 1411
Back
On Low-Back Pain with Special Reference to Value of Operative Treatment with Fusion, [Unander-Scharin] 1532
Bacteriology
Annual Review of Microbiology, [Clifton] 807
Cytology and Life-History of Bacteria, [Bisset] 1321
Handbook of Bacteriology, [Bigger] 805
Nature of the Bacterial Surface: Symposium of Society for General Microbiology, [Miles & Pirie] 595
On the Classification of Shigella Types, with Special Reference to Flexner Group, [Madsen] 969
Oxidation-Reduction Potentials in Bacteriology and Biochemistry, [Hewitt] 1135
Textbook of Bacteriology, [Dougherty] 596
Bailey, H., editor, Pye's Surgical Handicraft, 1218
Balmes, J., and Lévy, A., Pathologie du Nouveau-né, 282
Banks, H. S., Common Infectious Diseases, 720
Barringer, E. D., Bowery to Bellevue: Story of New York's First Woman Ambulance Surgeon, 591
Bates, M., Nature of Natural History, 508
Bauman, L., Diagnosis of Pancreatic Disease, 436
Beaumont Lecture
Surgical Treatment for Abnormalities of Heart and Great Vessels, [Gross] 1531
Beck, L. F., Human Growth: Story of How Life Begins and Goes on; Based on Educational Film of Same Title, 209
Behavior
Brain and Behaviour, [Ischlondsky] 509
Saints, Sinners and Psychiatry, [Anderson] 1412
Benhamou, E., Les thérapeutiques antibiotiques des maladies infectieuses, 973
Bertocci, P. A., Human Venture in Sex, Love, and Marriage, 722
Bettelheim, B., Love is Not *Enough: Treatment* of Emotionally Disturbed Children, 354
Beumont, G. E., Applied Medicine, 723
Beverages
Bridges' Food and Beverage Analysis, [Mattice] 77
Bigger, J. W., Handbook of Bacteriology, 805

Book Notices—Continued
Biochemistry
  Biochemical Aspects of Genetics, 1138
  Clinical Biochemistry, [Cantarow] 805
  Handbook of Physiology & Biochemistry Originally "Kirkes" and Later 'Halliburton's," [McDowall] 1598
  Oxidation Reduction Potentials [Hewitt] 1135
  Progress in Biochemistry, Report on Biochemical Problems and on Biochemical Research Since 1939, [Haurowitz] 806
  Textbook of Biochemistry, [Harrow] 506
Biography See Physicians
Biology
  Biological Foundations of Health Education, [Armstrong & others] 970
  Biological Studies with Polonium, Radium, and Plutonium, [Fink] 883
  Cold Spring Harbor Symposia on Quantitative Biology, Volume XIV, 883
  History of Biology, General Introduction to Study of Living Things, [Singer] 507
Birch-Jensen, A, Congenital Deformities of Upper Extremities, 593
Birren, F, Color Psychology and Color Therapy Factual Study of the Influence of Color on Human Life, 280
Birth Control See Contraception
Bisset K A Cytology and Life History of Bacteria, 1321
Blindness
  Adjustment of the Blind, [Chevigny & Braverman] 1041
  Blindness Modern Approaches to the Unseen Environment, [Zahn] 595
Blood
  Asphyxia Neonatorum Its Relation to the Fetal Blood, Circulation and Respiration and Its Effect upon the Brain, [Windle] 972
  Cerebral Circulation in Health and Disease, [Schmidt] 1319
  Coronary Circulation in Health and Disease, [Gregg] 436
  Die Technik der Blutgruppen-und Blutfaktorenbestimmung, [Dahr] 279
  Techniques de determination des groupes sanguins appliquees a la transfusion, [Moullec] 355
Blood Pressure
  Factors Regulating Blood Pressure Transactions of Third Conference May 5 6, 1949, New York, [Zweifach & Shorr] 968
  Primer of Venous Pressure, [Burch] 596
Blood Vessels
  Kreislaufstorungen an den Gliedmassen und ihre Behandlung [Bumm] 506
Blount, W P, editor, American Academy of Orthopaedic Surgeons Instructional Course Lectures Volume VI 1949, 723
Blumer, G, History Taking, 1045
Bockus, H L, editor, Postgraduate Gastroenterology, 804
Boeminghaus H Chirurgie der Urogenitalorgane Indikation und Technik, 1410
Boland, F K, First Anesthetic Story of Crawford Long, 972
Bonaparte, M, Life and Works of Edgar Allan Poe Psycho-Analytic Interpretation, 970
Bond E D, Thomas W Salmon, Psychiatrist, 509
von Bonin G, Essay on Cerebral Cortex, 972
Bookmiller, M M, and Bowen G L, Textbook of Obstetrics and Obstetric Nursing, 355
Bourne, A W, Synopsis of Obstetrics and Gynaecology, 973
Bowery to Bellevue Story of New York s First Woman Ambulance Surgeon, [Barringer] 591
Boyd W, Pathology of Internal Diseases, 1599
Brady, L, Kurtz, E L, and McLaughlin, E, Essentials of Gynecology, 434
Brain
  Abnormal Pneumoencephalogram, [Davidoff & Epstein] 357
  Asphyxia Neonatorum, [Windle] 972
  Brain and Behaviour, [Ischlondsky] 509
  Cerebral Circulation in Health and Disease, [Schmidt] 1319
  Cerebral Cortex of Man, [Penfield & Rasmussen] 1412
  Cerebral Palsy, [Pohl] 1222
  Essay on Cerebral Cortex [von Bonin] 972
  Selective Partial Ablation of Frontal Cortex, [Mettler] 1527
  Studies in Lobotomy, [Greenblatt & others] 1317
Brante, G, Studies on Lipids in the Nervous System 507
Breast Structure, Function, Disease, [Saner] 1600
Brewer, J I, Gynecology Teachings of John I Brewer, 969
Bridges' Food and Beverage Analysis, [Mattice] 77
Bright's Disease
  Natural History of Bright s Disease Study from Standpoint of Paediatrics, [Scott] 973
British Surgery
  Techniques in British Surgery, [Maingot] 1218
Broglie M, Lehrbuch der inneren medizin, 594
Bronchoscopy in Pulmonary Tuberculosis, [Froste] 1531
Brooks, T J, and Brooks, T J Jr, Relation of Soil Content to Human Longevity, 1044
Brown, F, and Kempton, R T, Sex Questions and Answers Guide to Happy Marriage, 1042
Brown, J A, Doctor Tom Brown Memories, 805
Brown, Thomas Richardson
  Doctor Tom Brown Memories, [Brown] 805
Brucellosis
  Brucellosis (Undulant Fever) Clinical and Subclinical, [Harris] 278
Bumm, E, Kreislaufstorungen an den Gliedmassen und ihre Behandlung, 506
Burch G E, A Primer of Venous Pressure, 596
Burlagg, H M, and others, Fundamental Principles and Processes of Pharmacy, 278
Burnet, F M, and Fenner, F, Production of Antibodies, 973
Burns
  New Approach to Treatment of Burns and Scalds, [Colebrook] 432
Buros, O K, editor, Third Mental Measurements Yearbook, 210
Burrows, H, Biological Actions of Sex Hormones 1134
Buschke,, F, Cantril, S T, and Parker, H M, Supervoltage Roentgentherapy, 1317
Butler, G D, Playgrounds Their Administration and Operation 1220
Cade S, Malignant Disease and Its Treatment by Radium, 1317
Callahan, A, Surgery of the Eye Injuries, 1600
Calvert, R, Patent Practice & Management for Inventors and Executives, 805
Cameron, G, Tissue Culture Technic, 1411
Camps
  Theory of Camping, [Irwin] 1415
Campbell, H J, and Liberman, J B, Physicians Federal Income Tax Guide, 1526
Canada
  Guide to Diagnosis of Occupational Diseases Reference Manual for Physicians, 279
Cancer See also Tumors
  Cancer, Manual for Practitioners, [Daland & others] 806
  Cancer Nursing Manual for Public Health Nurses, [Knapp] 507
  Cytologic Diagnosis of Cancer, 75
  Die Hypertrophie und das Carcinom der Prostata, [Hrynstschak] 1044
  Le Cancer du crops utérin, [Chalnot & Beau] 1138
  Malignant Disease and Its Treatment by Radium, [Cade] 1317
  Oral and Facial Cancer, [Sarnat & Schour] 1599
  Primary Carcinoma of Vagina, [Livingstone] 592
  Researches on Radiotherapy of Oral Cancer, [Wood & Boag] 1136
Canadell, J M, Trastornos del crecimiento y del desarrollo sexual, 78
Cantarow, A, Clinical Biochemistry, 805
Cantor, M O, Intestinal Intubation, 804
Cardiography, [Evans] 504
Cardiovascular System See also Blood Vessels; Heart
  Proceedings First National Conference on Cardiovascular Diseases 1950, 1599
Carlyle, Thomas
  Mr Carlyle My Patient A Psychosomatic Biography, [Halliday] 881
Caspersson, T O, Cell Growth and Cell Function. Cytochemical Study, 968
Cataract
  Surgery of Cataract, [Kirby] 1219
Cattell, R B, Personality Systematic Theoretical and Factual Study, 1600
Cells See Cytology
Cerebral Palsy, [Pohl] 1222
Chalnot, P, and Beau, M, editors, Le Cancer du corps uterin, 1138
Chemistry See also Biochemistry, Pharmacy
  Alkaloids Chemistry and Physiology, [Manske & Holmes] 435
  Chemical Inventions and Chemical Patents, [Thomas] 77
  Chemistry and Function of Vitamins, [Eddy] 210
  Chemistry of Industrial Toxicology, [Elkins] 802
  Chemistry of Organic Medicinal Products, [Jenkins & Hartung] 970
  Encyclopedia of Chemical Technology, [Kirk & Othmer] 434
  Fundamentals of Chemistry and Applications, [Frances & Morse] 284
  German English Dictionary for Chemists, [Patterson] 1600
  Heterocyclic Derivatives of Phosphorus Arsenic, Antimony, Bismuth and Silicon, [Mann] 357
Chemistry—*Continued*
  Lehrbuch der organischen Chemie, [Karrer] 283
  Phenomena, Atoms and Molecules, [Langmuir] 723
  Physical Chemistry for Premedical Students [Amsden] 1528
Chemotherapy
  Chemotherapie der Tuberkulose mit den Thiosemikarbazonen, [Domagk] 1137
  Recent Advances in Chemotherapy, [Findlay] 1319
Chest See Thorax
Chevigny, H, and Braverman, S, Adjustment of the Blind, 1041
Chicago Medical Society, Fifth Clinical Conference, 592
Children See also Infants, Pediatrics
  Child Development, [Hurlock] 884
  Child Treatment and Therapy of Play, [Jackson & Todd] 506
  Children with Mental and Physical Handicaps, [Wallin] 883
  Creative Nursery Center Unified Service to Children and Parents, [Allen] 721
  Envelope Study of Impact of the World upon the Child, [Plant] 594
  In Defense of Mothers How to Bring up Children in Spite of the More Zealous Psychologists, [Kanner] 1220
  Love is Not Enough Treatment of Emotionally Disturbed Children, [Bettelheim] 354
  Our Rejected Children, [Deutsch] 1596
  Psychology of Exceptional Children, [Garrison] 509
  Speech Problems of Children Guide to Care and Correction, [Johnson] 1135
  Trastornos del crecimiento y del desarrollo sexual, [Canadell] 78
Christensen, H G, Marriage Analysis Foundations for Successful Family Life 884
Church
  Older People and the Church [Maves & Cedarleaf] 435
Circulation See Blood
Cleckley, H, Mask of Sanity, 1043
Clemedson, C J, Experimental Study on Air Blast Injuries, 357
Clements, F W, Infant Nutrition, Its Physiological Basis, 593
Clifton, C E, Annual Review of Microbiology, 807
Clinics
  Unit Medical Records in Hospitals and Clinic, [Kurtz] 1045
Colby, F H, Essential Urology, 283
Cold Spring Harbor Symposia on Quantitative Biology, Volume XIV, 883
Colebrook, L, New Approach to Treatment of Burns and Scalds, 432
Colitis
  Colitis ulcerosa grave, [Sociedad argentina de proctología] 807
Collins D H, Pathology of Articular and Spinal Diseases, 721
Color Psychology and Color Therapy, [Birren] 280
Colwell, A R, Types of Diabetes Mellitus and Their Treatment, 1218
Comel M, Dermatologia e medicina, 596
Communicable Diseases See also Epidemiology
  Communicable Diseases, [Pullen] 1217
  Les thérapeutiques antibiotiques des maladies infectieuses, [Benhamou] 973
  Common Infectious Diseases Handbook for Students and Postgraduates [Banks] 720
Comroe, J H, Jr, editor, Methods in Medical Research, 78
Conason, E G, and Metz, E, Salt-Free Diet Cook Book, 1135
Conference on Problems of Aging, [Shock] 355
Constitution
  Ernährung und Konstitution, [Lenz] 508
Contraception
  Techniques of Conception Control, [Dickinson] 973
Cook Book
  Salt Free Diet Cook Book, [Conason & Metz] 1135
Coon C S, Garn, S M, and Birdsell J B, Races Study of the Problems of Race Formation in Man, 1044
Cooper, C A, We Pass This Way, 1222
Cooper L F, Nutrition in Health and Disease 971
Coronary Circulation on Health and Disease [Gregg] 436
Cost and Financing of Social Security, [Meriam & Schotterbeck] 881
Cowdry, E V, Textbook of Histology Functional Significance of Cells and Intercellular Substances, 1218
Cox, A, Among the Doctors 1045
Creative Nursery Center Unified Service to Children and Parents, [Allen] 721
Criminals
  Our Rejected Children, [Deutsch] 1596
  Sexual Criminal Psychoanalytical Study, [de River] 806 (comment on Review) [Guttmacher] 1586—C

Book Notices—Continued
Crippen, Hawley Harvey
  Trial of Hawley Harvey Crippen, [Young] 78
Crockford, H. D., Fundamentals of Physical Chemistry for Premedical Students, 509
Crosso, V. M., Premature Baby, 808
Cullen, Thomas S.
  Tom Cullen of Baltimore, [Robinson] 283
Cushing, Harvey
  Harvey Cushing; Surgeon, *Author, Artist,* [Thompson] 592
Cyclopedia: See Encyclopedia
Cytology: See also Histology
  Cell Growth and Cell Function: Cytochemical Study, [Caspersson] 968
  Cytologic Diagnosis of Cancer, 75
  Cytology of Human Vagina, [Allende & Orias] 1530
  Textbook of Histology: Functional Significance of Cells and Intercellular Substances, [Cowdry] 1218
Dahr, P., Die Technik der Blutgruppen-und Blutfaktorenbestimmung, 279
Daland, E. M., & others, Cancer: Manual for Practitioners, 806
Dallemagne, M. J., Aspects actuels de l'anesthésiologie, 591
Daniel, E. H., Amputation Prosthetic Service, 353
Darwin, C., On the Origin of Species (reprint *of first edition*), 971
Davidoff, L. M., and Epstein, B. S., Abnormal Pneumoencephalogram, 357
Death
  Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, 723
Deformities
  Congenital Deformities of Upper Extremities, [Birch-Jensen] 593
Degkwitz, R., and others Lehrbuch der Kinderheilkunde, 1529
De Lee, S. T., Safeguarding Motherhood, 1011
Delinquency
  Our Rejected Children, [Deutsch] 1596
De Lorimier, A. A., Arthropathies: Handbook of Roentgen Diagnosis, 210
de River, J. R., Sexual Criminal: Psychoanalytical Study, 806; (comment on review) [Guttmacher] 1586—C
Dentistry
  Dental Injuries Following Radical Surgery on the Maxillary Sinus, [Martensson] 590
Dermatology
  Atlas der Haut- und Geschlechtskrankheiten, [Frieboes] 505
  Dermatologia e medicina, [Comel] 596
  Regional Dermatologic Diagnosis, [Epstein] 1597
  Short Textbook of Radiotherapy, [Walter & Miller] 972
Deutsch, A., Our Rejected Children, 1596
Dewberry, E. B., Food Poisoning, 1600
Diabetes Mellitus
  Primer for Diabetic Patients, [Wilder] 281
  Types of Diabetes Mellitus and Their Treatment, [Colwell] 1218
Diagnosis
  Arthropathies: Handbook of Roentgen Diagnosis, [De Lorimier] 210
  Clinical Interpretation of Laboratory Tests, [*Goodale*] 435
  Merck Manual of Diagnosis and Therapy, 973
  Regional Dermatologic Diagnosis, [Epstein] 1597
Dickinson, R. L., Techniques of Conception Control, 973
Dickinson, R. L., and Gamble, C. J., Human Sterilization: Techniques of Permanent Conception Control, 1526
Dictionary: See also Encyclopedia
  Dictionaire de spécialités pharmaceutiques 1950, [Vidal], 973
  German-English Dictionary for Chemists, [Patterson] 1600
Diehl, H. S., Textbook of Healthful Living, 505
Diet: See also Food; Nutrition; Vitamins
  Nutrition and Diet Therapy, [Proudfit & Robinson] 1600
  Rose's Laboratory Handbook for Dietetics, [Taylor & MacLeod] 1135
  Salt-Free Diet Cook Book, [Conason & Metz] 1135
  Stern's Applied Dietetics: Planning and Teaching of Normal and Therapeutic Diets, [Rosenthal & others] 281
Diethelm, O., Treatment in Psychiatry, 596
Digitalis
  William Withering of Birmingham, M.D., F.R.S., F.L.S., [Peck & Wilkinson] 1416
Diphtheria
  Developments in Diphtheria Prophylaxis, [Holt] 1415
Discoveries: See also Patents
  New Discoveries in Medicine: Their Effect on the Public Health, [Hawley] 593
Disease: See also Diagnosis; Pathology; Therapeutics
  Chronic Disease Patients and Their Institutional Care, [Merrill] 720
  Manual of the International Statistical Classification, 723
Doctors: See Physicians
Dodson, A. I., and Boyer, R. A., Urological Surgery, 591
Döderlein, G., and Mestwerdt, G., Geburtshilflich-gynäkologische Propädeutik und Untersuchungslehre, 355
Domagk, G., Chemotherapie der Tuberkulose mit den Thiosemikarbazone, 1137
Donnolo, R. Shabtai (913-985), [Muntner] 808
Dorcus, R. M., Textbook of Abnormal Psychology, 1532
Dougherty, J. M., Textbook of Bacteriology, 596
Dressler, W., and Roesler, H., Atlas of Electrocardiography, 355
Drugs: See Pharmacy
Dry, T. J., Manual of Cardiology, 593
Dulles, F. R., American Red Cross: History, 1115
Dysentery
  On Classification of Shigella Types, with Special Reference to Flexner Group, [*Madsen*] 969
Ear: See Otorhinolaryngology
Economic and Taxes Incentives, [Kimmel] 1116
Economics, Medical
  Voluntary Prepayment Medical Care Plans, 1131
Eddy, W. H., Vitaminology: Chemistry and Function of Vitamins, 210
Education: See also Sex
  Guiding Learning Experience: Principles of Progressive Education Applied to Nursing *Education*, [Muse] 75
  Trends in Medical Education: New York Academy of Medicine Institute, [Ashford] 882
Edwards, E. A., Thrombosis in Arteriosclerosis of Lower Extremities, 722
Efficiency Tests
  Researches on Measurement of Human Performance, [Mackworth] 1526
Eickhoff, W., Die pathologischanatomischen *Grundlagen der Alergie*, 595
Einstein, A., Out of My Later Years, 352
Electricity
  Characteristics of Electrical Discharges in Magnetic Fields, [Guthrie & Wakerling] 209
Electrocardiography: See Heart
Eliason, E. L., Ferguson, L. K., and Sholtis, L. A., *Surgical Nursing*, 1221
Elkins, H. B., Chemistry of Industrial Toxicology, 802
Elliott, E. C., General Report of Pharmaceutical Survey 1916-19, 806
Emerson, C. P., Jr., and Taylor, J. E., Essentials of Medicine: Basis of Nursing Care, 1597
Emotions
  The Envelope, Study of the Impact of the World upon the Child, [Plant] 594
Encyclopedia: See also Dictionary
  Encyclopedia of Chemical Technology, [Kirk & Othmer] 434
  Physicians' and *Nurses'* Concise Medical Encyclopaedia, [Kupper] 881
  Pocket Encyclopedia of Atomic Energy, [*Gaynor*] 971
Endocrinology: See also Adrenals; Goiter; *Pituitary*
  Hormones: Physiology, Chemistry and Applications, [Pincus & Thimann] 1416
  Klinische Endokrinologie: Ein Lehbruch, [*Jores*] 507
  1949 Year Book of Endocrinology, Metabolism and Nutrition, [Thompson] 1527
  Progress in Clinical Endocrinology, [Soskin] 1045
  Simmonds' Disease: Extreme Insufficiency of Adenohypophysis, [Farquharson] 1322
  Textbook of Endocrinology, [Williams] 882
Engle, E. T., editor, Menstruation and Its Disorders, 280
Entomology
  Medical Entomology, [Herms] 1599
Envelope: Study of the Impact of the World upon the Child, [Plant] 594
Epidemiology: See also Communicable Diseases
  Epidemiology in Country Practice, [Pickles] *1413*
  Précis d'hygiène et d'épidémiologie, [Sédellian & Sohier] 967
Epstein, E., Regional Dermatologic Diagnosis, *1597*
Erythema Nodosum
  Course and Prognosis in Primary Tuberculosis with Erythema *Nodosum* in Children, [Holmdahl] 883
Evans, W., *Cardiography, 504*
Evolution
  Comparative Anatomy and Physiology of the Larynx, [Negus] 805
  On the Origin of Species (reprint of first edition), [Darwin] 971
Exercises
  Exercise and Relaxation for Natural Childbirth, [Heardman] 352
  Massage and Remedial Exercises in Medical and Surgical Conditions, [Tidy] 357
  Orthopadische Gymnastik, [Hohmann & Jegel-Stumpf] 354
Extremities: See also Orthopedics
  Congenital Deformities of Upper Extremities, [Birch-Jensen] 593
  Thrombosis in Arteriosclerosis of Lower Extremities, [Edwards] 722
Eyes: See Ophthalmology
Fabricant, N. D., Amusing Quotations for Doctors and Patients, 722
Face
  Oral and Facial Cancer, [Sarnat & Schour] 1599
Family
  American Family: Factual Background, 1413
  Marriage and Family Relationships, [Foster] 1321
Farquharson, R. F., Simmonds' Disease: *Extreme Insufficiency of the Adenohypophysis*, 1322
Farris, E. J., Human Fertility and Problem of *the Male, 803*
Ferm, V., editor, Forgotten Religions (Including Some Living Primitive Religions), 284
Fertility
  Fertility in Marriage: Guide for Childless, [Portnoy & Saltman] 431
  Human Fertility and Problem of the Male, [*Farris*] *803*
Fetus
  Asphyxia Neonatorum: Its Relation to Fetal Blood, Circulation and Respiration and Its Effects upon the Brain, [Windle] 972
Fiction: See also Poetry
  Saw-Ge-Mah (Medicine Man), [Garlepy] 1045
  We Pass This Way, [Cooper] 1222
Field, J. W., Microscopic Diagnosis of Human Malaria, Part I: A Short Descriptive Atlas of Thick-Film Diagnosis, 1138
Findlay, G. M., Recent Advances in Chemotherapy, *1319*
Fink, R. M., editor, Biological Studies with Polonium, Radium, and Plutonium, 883
Fischer, W., and Gruber, G. B., Funfzig Jahre Pathologie in Deutschland, 504
Fliess, Wilhelm
  Aus den Anfangen der Psychoanalyse, [*Freud*] *1414*
Food: See also Diet; Nutrition; Vitamins
  Bridges' Food and Beverage Analysis, [Mattice] 77
  Food Poisoning, [Dewberry] 1600
  Meat and Meat Foods: Processing and Preservation from Meat Plant to Consumer, [Jensen] 1221
  Relation of Soil Content to Human Longevity, [Brooks & Brooks] 1044
Foot
  Diseases of the Foot, [Hauser] 722
Foote, R. R., Varicose Veins, 75
Foss, B., Experimental Anaphylactic Iridocyclitis, 436
Foster, R. G., Marriage and Family Relationships, 1321
Foundations of Community Health *Education*, [Paterson] 968
Fractures
  Causation and Treatment of Delayed Union in Fractures of Long Bone, [Starr] 1134
Francis, C. A., and Morse, E. C., Fundamentals of Chemistry and Applications, 284
Francis, C. C., and Knowlton, G. C., Textbook of Anatomy and Physiology, 967
Freud, S., Question of Lay Analysis: Introduction to Psychoanalysis, 282
  Aus den Anfangen der Psychoanalyse: Briefe an Wilhelm Fliess, 1414
Frieboes, W., Atlas der Haut-und Geschlechtskrankheiten, 505
Froste, N., Bronchoscopy in Pulmonary Tuber*culosis, 1531*
Future in Medicine: March of Medicine, 1949, [New York Academy of Medicine] 1135
Garlepy, L. J., Saw-Ge-Mah (Medicine Man), 1045
Garrison, K. C., Psychology of Exceptional Children, 509
Gastroenterology
  Klinik und Therapie der massiven Magendarmblutung, [Markoff] 1529
  Postgraduate Gastroenterology, [Bockus] 804
Gaynor, F., Pocket Encyclopedia of Atomic Energy, 871
Gelfand, M., Schistosomiasis in South Central *Africa, 1220*
Genetics
  Avviamento alla patologia genetica dell'uomo, [*Giordano*] *436*
  Biochemical Aspects of Genetics, 1138
Genito-Urinary Surgery, [Walker & Walker] 1136
Geriatrics: See Old Age
German-English Dictionary for Chemists, [Patterson] 1600
Germany
  Funfzig Jahre Pathologie in Deutschland, [Fischer & Gruber] 504
Germicides
  Surface-Active Quaternary Ammonium Germicides, [Lawrence] 282
Gillison, M., Histology of Body Tissues with Consideration of Their Functions, 1321

Book Notices—Continued
Ginsburg, E L, Public Health is People, 76
Giordano, A, Avviamento alla patologia genetica dell'uomo, 436
Glasser, O, editor, Medical Physics, Volume II, 882
Goepp, R M, and Flippin, H F, Medical State Board Questions and Answers, 210
Goiter
  American Goiter Association, Transactions of 1949 Annual Session, 1528
Goodale, R H, Clinical Interpretation of Laboratory Tests, 435
Goodman, H, Your Hair. Its Health, Beauty and Growth, 1322
Governors' Conference
  Mental Health Problem of the Forty-Eight States, 1528
Green, H N, Biological Actions of Adenine Nucleotides, 720
Greenblatt, M, Arnot, R, and Solomon, H C., editors, Studies in Lobotomy, 1317
Gregg, D E, Coronary Circulation in Health and Disease, 436
Grober, J, Klinisches Lehrbuch der physikalischen Therapie, 281
Gross, R E, Surgical Treatment for Abnormalities of Heart and Great Vessels, 1531
Grosse-Brockhoff, F, Einfuhrung in die pathologische Physiologie, 1322
Growth
  Human Growth Story of How Life Begins and Goes on, [Beck] 209
  Trastornos del crecimiento y del desarrollo sexual, [Cañadell] 78
Guthrie, A, and Wakerling, R K, editors, Characteristics of Electrical Discharges in Magnetic Fields, 209
Gynecology
  Aetios of Amida Gynaecology and Obstetrics of VIth Century, A D, [Ricci] 1319
  Breast. Structure, Function, Disease, [Saner] 1600
  Chirurgisch-gynakologische Grenzfragen, [Uebermuth] 1134
  Cytology of Human Vagina, [Allende & Orias 1530
  Die Physiologie der Zeugung des Menschen, [Knaus] 279
  Essentials of Gynecology, [Brady & others] 434
  Geburtshilflich-gynakologische Propadeutik und Untersuchungslehre, [Doderlein & Mestwerdt] 355
  Gynaecology, [Schlink] 802
  Gynecology Teachings of John I Brewer, [Brewer] 969
  Le Cancer du corps uterin, [Chalnot & Beau] 1138
  Medical Gynecology, [Janney] 433
  Menstruation and Its Disorders, [Engle] 280
  Practical Gynecology, [Reich & Nechtow] 1598
  Primary Carcinoma of Vagina, [Livingstone] 592
  Synopsis of Obstetrics and Gynaecology, [Bourne] 973
  You'll Live Through It Facts about the Menopause, [Lincoln] 1045
Hadfield, J A, Psychology and Mental Health, 1136
Hair
  Your Hair· Its Health, Beauty and Growth, [Goodman] 1322
Hall, V E, editor, Annual Review of Physiology, 1318
Halliday, J L Mr Carlyle My Patient: Psychosomatic Biography, 882
Ham A W, Histology, 508
Hamilton, K W, Counseling the Handicapped in Rehabilitation Process, 1411
Hammond, J F, editor, Questions and Answers, Volume 3, 280
Handicapped
  Counseling Handicapped in Rehabilitation Process, [Hamilton] 1411
Handwriting Analysis as a Psychodiagnostic Tool, [Sonnemann] 505
Hanlon, J J, Principles of Public Health Administration, 1530
Happiness
  Art of Real Happiness, [Peale] 1134
Happy Toil Fifty-Five Years of Tropical Medicine, [Rogers] 593
Harkness, A H, Non-Gonococcal Urethritis, 1222
Harris, D, Some Relations between Vision and Audition, 1045
Harris, H J, Brucellosis (Undulant Fever) Clinical and Subclinical, 278
Harris, S H, Woman's Surgeon Life Story of J Marion Sims, 1137
Harrow, B, Textbook of Biochemistry, 506
Harrowes, W, Human Personality and Its Minor Disorders, 435
Haurowitz, F, Progress in Biochemistry . . . . Since 1939, 806
Hauser, E D W, Diseases of the Foot, 722
Hawking, F, and Lawrence, J. S, Sulphonamides, 1527
Hawley, E E, Art and Science of Nutrition, 807
Hawley, P R, New Discoveries in Medicine: Their Effect on the Public Health, 593
Head
  Diagnosis and Treatment of Tumors of Head and Neck, [Ward & Hendrick] 1597
Health See also Hygiene, Mental Hygiene
  Aids to Public Health, [Roberts] 1322
  Biological Foundations of Health Education· Proceedings of the Eastern States Health Education Conference, April 1-2, 1948, [Armstrong & others] 970
  Foundations of Community Health Education, [Paterson] 968
  Fundamentals of Personal Hygiene· Their Practical Application to Healthful Living, [Krueger] 806
  Graduate Study in Health Education, Physical Education and Recreation, 804
  How to Stop Killing Yourself, [Steincrohn] 283
  New Discoveries in Medicine Their Effect on Public Health [Hawley] 593
  One half the People Doctors and Crisis of World Health, (reply to review) [Wilson] 334—C
  Practical Statistics in Health and Medical Work, [Puffer] 353
  Précis d'hygiène et d'épidémiologie, [Sédallian & Sohier] 967
  Principles of Public Health Administrations, [Hanlon] 1530
  Textbook on Healthful Living, [Diehl] 505
  Theory of Camping, [Irwin] 1415
Heardman, H Relaxation and Exercise for Natural Childbirth, 352
Hearing
  Some Relations between Vision and Audition, [Harris] 1045
Heart
  Atlas of Electrocardiography, [Dressler & Roesler] 355
  Cardiography, [Evans] 504
  Les maladies des coronaires· l'infarctus du myocarde l'insuffisance coronarienne, [Lauby & Soulie] 1318
  Manual of Cardiology, [Dry] 593
  Surgical Treatment for Abnormalities of Heart and Great Vessels, [Gross] 1531
  You and Your Heart A Clinic for Laymen on the Heart and Circulation, [Marvin & others] 78
Hellpach W, Klinische Psychologie, 1042
Hematology· See Blood
Henderson, H, Textbook of Psychiatry for Students and Practitioners, 884
Henderson, T, Principles of Ophthalmology, 1222
Heredity See Genetics
Herms W B, Medical Entomology, 1599
Heron, W T, Clinical Applications of Suggestion and Hypnosis, 1526
Hess, J H, and Lundeen, E C, Premature Infant Medical and Nursing Care, 721
Hess W, Chirurgie des Pancreas, 593
Hesse, E, Angewandte Pharmakologie, 357
Hetherrington, H W, and Eshleman, F W, Nursing in Prevention and Control of Tuberculosis, 1222
Hewitt, L F, Oxidation-Reduction Potentials in Bacteriology and Biochemistry, 1135
Heyden, R, The Respiratory Function in Laryngectomized Patients 1138
Hill, A B, Principles of Medical Statistics, 78
Hirsch E W, Sexual Fear, 1136
Histology See also Cytology
  Histology, [Ham] 508
  Histology of Body Tissues with Consideration of Their Functions, [Gillison] 1321
  McClung's Handbook of Microscopical Technique for Workers in Animal and Plant Tissues, [Jones] 1529
  Methods of Tissue Culture, [Parker] 1526
  Physiology of Tissues and Organs [Lee] 356
  Textbook of Histology· Functional Significance of Cells and Intercellular Substances, [Cowdry] 1218
  Tissue Culture Technique, [Cameron] 1411
History of Biology, [Singer] 507
History of Medicine See Medical History
History Taking, [Blumer] 1045
Hoare, C A, Handbook of Medical Protozoology for Medical Men, Parasitologists and Zoologists 1526
Hoepke, H, Das Muskelspiel des Menschen, 507
Hoffbauer, F W, editor, Liver Injury, 436
Hohmann G, and Iegel-Stumpf, L, Orthopadische Gymnastik, 354
Holbrook, W P, and Hill, D F., Manual of Rheumatic Diseases, 967
Holden, H M, Noses, 972
Hollender, A R, Office Treatment of Nose, Throat and Ear, 885
Holmdahl, K, Course and Prognosis in Primary Tuberculosis with Erythema Nodosum in Children, 883
Holmes, T H, The Nose· Experimental Study of Reaction within the Nose in Human Subjects During Varying Life Experiences, 508
Holt, L B, Developments in Diphtheria Prophylaxis, 1415
Hormones
  Biological Actions of Sex Hormones, [Burrows] 1134
  Hormones Physiology, Chemistry and Applications, [Pincus & Thimann] 1416
  Recent Progress in Hormone Research, [Pincus] 1596
Hospitals
  Handbook on Accounting, Statistics and Business Office Procedures, 508
  Hospital Nursing Service Manual, 77
  Patients in Mental Institutions 1947, [Limburg] 356
  Training for Childbirth Program of Natural Childbirth with Rooming-In, [Thoms] 352
  Unit Medical Records in Hospital and Clinic, [Kurtz] 1045
How to Stop Killing Yourself, [Steincrohn] 283
Howell, T H, Old Age: Some Practical Points in Geriatrics and Gerontology, 1322
Hryntschak T Die Hypertrophie und das Carcinom der Prostata, 1044
Human Growth Story of How Life Begins and Goes on, [Beck] 209
Human Venture in Sex, Love and Marriage, [Bertocci] 722
Hume, E H, Doctors Courageous, 1042
Hurlock, E B, Child Development, 884
Hygiene· See also Health
  Fundamentals of Personal Hygiene, [Krueger] 806
Hypnosis
  Clinical Applications of Suggestion and Hypnosis, [Heron] 1526
Immortal Magyar: Semmelweis, Conqueror of Childbed Fever [Slaughter] 1532
Income Tax
  Physicians Federal Income Tax Guide, [Campbell & Liberman] 1526
In Defense of Mothers How to Bring up Children in Spite of the More Zealous Psychologists, [Kanner] 1220
Indiana
  One Hundred Years of Indiana Medicine, 1849-1949, [Russo] 1321
Indigents
  Public Assistance Code of Illinois and Related Laws Affecting Public Aid, 1949-1951, 284
Industry
  Chemistry of Industrial Toxicology, [Elkins] 802
  Eyes and Industry (Formerly Industrial Ophthalmology) [Kuhn] 1531
  Guide to Diagnosis of Occupational Diseases: Reference Manual for Physicians, 279
  Proceedings of the Ninth International Congress on Industrial Medicine, London, 13th-17th September, 1948, 1041
  Psychologist in Industry, [Steiner] 280
  Traité des maladies professionneles, [Langelez] 76
Infants See also Children· Pediatrics
  Asphyxia Neonatorum, [Windle] 972
  Infant Nutrition Its Physiological Basis, [Clements] 593
  Manual Procedures and Layout for Infant Formula Room, [American Hospital Association] 1135
  New York City's Baby Book Handbook for Parents, 723
  Pathologie du nouveau-ne, [Balmes] 283
  Premature Baby, [Crosse] 808
  Premature Infants Medical and Nursing Care, [Hess & Lundeen] 721
Infection
  Penicillin and Streptomycin in Treatment of Infections, [Keefer] 808
Infectious Diseases See Communicable Diseases
Injuries See Trauma
Insulin
  Die Insulin Lipodystrophie, [Kehrer] 808
Internal Medicine
  Einfuhrung in die innere Medizin, [Wolf] 1320
  Introduction a la medecine interne, [Roskam] 591
  Lehrbuch der inneren Medizin, [Broglie] 594
  Lehrbuch der inneren Medizin, [Lauda] 75, 434
  Lehrbuch der inneren Medizin, [Schwiegk & Jores] 357
  Pathology of Internal Diseases, [Boyd] 1599
  Massage reflektorischer Zonen im Bindegewebe bei rheumatischen und inneren Erkrankenungen, [Leube & Dicke] 1598
International Congress on Industrial Medicine, London, 13th-17th September, 1948 Proceedings, 1041
International Statistical Classification of Diseases, Injuries and Causes of Death, 723
Intestines
  Intestinal Intubation, [Cantor] 804
Inventions, Patents and Monopoly, [Meinhardt] 1597
Iridocyclitis
  Experimental Anaphylactic Iridocyclitis, [Foss] 436

Book Notices—Continued
Irvine, K. N., B C.G. Vaccination in Theory and Practice, 1111
Irwin, F. L., Theory of Camping, 1115
Ischlondsky, N. E., Brain and Behaviour, 509
Jackson, L., and Todd, K. M., Child Treatment and the Therapy of Play, 506
Janney, J. C., Medical Gynecology, 132
Jenkins, G. L., and Hartung, W. H., Chemistry of Organic Medicinal Products, 970
Jensen, L. B., Meat and Meat Foods: Processing and Preservation from Meat Plant to Consumer, 1221
Jewish Artists of the 19th and 20th Centuries, [Schwarz] 210
Johns Hopkins Medical School
  Doctor Tom Brown: Memories, [Brown] 805
Johnson, W., Speech Problems of Children: Guide to Care and Correction, 1135
Jones, R. M., editor, McClung's Handbook of Microscopical Technic for Workers in Animal and Plant Tissues, 1529
Jores, A., Klinische Endokrinologie, 507
Jurisprudence: See Medical Jurisprudence
Juvenile Delinquency
  Our Rejected Children, [Deutsch] 1596
Kalkman, M. E., Introduction to Psychiatric Nursing, 281
Kanner, L., In Defense of Mothers: How to Bring up Children in Spite of the More Zealous Psychologists, 1220
Karrer, P., Lehrbuch der organischen Chemie, 283
Kauffmann, F., Diagnosis of Salmonella Types, 1411
Kazanjian, V. H., and Converse, J. N., Surgical Treatment of Facial Injuries, 501
Keefer, C. S., Penicillin and Streptomycin in the Treatment of Infections, 808
Kehrer, F. A., Die Insulin-Lypodystrophie, 808
Kerr, J. M. M., and Moir, J. C., Operative Obstetrics: Guide to Difficulties and Complications of Obstetric Practice, 76
Kersley, G. D., Rheumatic Diseases, 881
Kessler, H. H., Principles and Practices of Rehabilitation, 590
Khairallah, A. A., Outline of Arabic Contributions to Medicine, 885
Kidd, J. G., editor, Pathogenesis and Pathology of Viral Diseases, 1532
Kidneys
  Medical Diseases of the Kidney (Atlas and Introduction), [McManus] 506
  Natural History of Bright's Disease: Study from Standpoint of Paediatrics, [Scott] 973
Kimmel, L. H., Taxes and Economic Incentives, 1416
Kinesiology, [Morehouse & Cooper] 1599
Kirby, D. B., Surgery of Cataract, 1219
Kirk, R. E., and Othmer, D. F., editors, Encyclopedia of Chemical Technology, 134
Klein, H. R., Potter, H. W., and Dyk, R. B., Anxiety in Pregnancy and Childbirth, 356
Klemer, D. H., When Young People Ask About Sex, 434
Knapp, M., Cancer Nursing: Manual for Public Health Nurses, 507
Knaus, H., Die Physiologie der Zeugung des Menschen, 279
Kon, S. K., and Mawson, E. H., Human Milk: Wartime Studies of Certain Vitamins and *Other Constituents*, 1412
Kovács, R., Manual of Physical Therapy, 808
  Light Therapy, 1532
Krayenbuhl, H., Noto, G. G., and others, Das intrakranielle subdurale, Hamatom, 590
Kretschmer, V. E., Medizinische Psychologie, 209
  Psychotherapeutische Studien, 209
Krueger, W. W., Fundamentals of Personal Hygiene: Their Practical Application to Healthful Living, 806
Krupp, M. A., and others, Physician's Handbook, 1219
Kuhn, H. S., Eyes and Industry (Formerly Industrial Ophthalmolgy), 1531
Kuntz, A., Text-Book of Neuro-Anatomy, 281
Kupper, W. H., Physicians' and Nurses' Concise Medical Encyclopaedia, 881
Kurtz, D., Unit Medical Records in Hospital and Clinic, 1045
Kutschera-Aichbergen, H., Die Tuberkulose vom Standpunkt des Internisten, 1320
Labor: See Obstetrics
Laboratory
  Clinical Interpretation of Laboratory Tests, [Goodale] 435
  Methods in Medical Research. Volume 11, [Comroe] 78
  Rose's Laboratory Handbook for Dietetics, [Taylor & McLeod] 1135
Landis, C., and Bolles, M. M., Textbook of Abnormal Psychology, 284
Lane Medical Lectures
  Cerebral Cortex of Man, [Penfield & Rasmussen] 1412
Langelez, A., Traité des maladies professionnelles, 76
Langmuir, I., Phenomena, Atoms and Molecules, 723
Larynx
  Comparative Anatomy and Physiology of the Larynx, [Negus] 805
  Respiratory Function in Laryngectomized Patients, [Heyden] 1138
Laubry, C., and Soulié, P., Les maladies des coronaires: l'infarctus du myocarde, l'insuffisance coronarienne, 1318
Lauda, E., Lehrbuch der inneren Medizin, 75; 434
Laurentian Hormone Conference
  Recent Progress in Hormone Research, [Pincus] 1596
Lawrence, C. A., Surface-Active Quaternary Ammonium Germicides, 282
Laws
  Inventions, Patents and Monopoly (British Laws), [Meinhardt] 1597
  Public Assistance Code of Illinois and Related Laws Affecting Public Aid, 1949-1951, 281
Lazorthes, G., Le système névrovasculaire, 885
Lectures. See under specific names as Beaumont; Lane
Lee, D. H. K., Physiology of Tissues and Organs, 356
Le Foyer, P., and Delbecq, E., Traité du pneumothorax extra-pleural, 131
Lenz, W., Ernährung und Konstitution, 508
Leptospirosis
  Die Leptospirose, [Rimpau] 1136
Leube, H., and Dicke, E., Massage reflektorischer Zonen im Bindegewebe bei rheutischen und inneren Erkrankenungen, 1598
Lewin, S. A., and Gilmore, J., Sex Without Fear, 433
Lhotsky, J., Der Film als Experiment und Heilmethode, 1221
Licensure
  Medical State Board Questions and Answers, [Goepp & Flippin] 210
Life
  Human Growth: Story of How Life Begins and Goes on, 209
  Longevity: Relation of Soil Content to Human Longevity, [Brooks & Brooks] 1044
Light Therapy, [Kovacs] 1532
Limburg, C. G., Patients in Mental Institutions 1947, 356
Lincoln, M., You'll Live Through It: Facts About the Menopause, 1015
Lipids
  Lipidoses, [Thannhauser] 435
  Studies on Lipids in the Nervous System, [Brante] 507
Lippincott's Quick Reference Book for Nurses, [Young & Allanach] 1322
Litvirov, I., translator, Russian Impact on Art, 1318
Liver Injury, Transactions of Eighth Conference April 28 and 29, 1949, [Hoffbauer] 436
Livingstone, R. G., Primary Carcinoma of Vagina, 592
Long, Crawford
  The First Anesthetic: Story of Crawford Long, [Boland] 972
Longevity: Relation of Soil Content to Human Longevity, [Brooks & Brooks] 1044
Lorand, S., editor, Yearbook of Psychoanalysis, 507
Love is Not Enough: Treatment of Emotionally Disturbed Children, [Bettelheim] 354
Lowrey, L. G., Psychiatry for Social Workers, 1532
McCurdy, R. N. C., Rhesus Danger; Medical, Moral and Legal Aspects, 1527
McDougall, J. B., Tuberculosis: A Global Study in Social Pathology, 723
McDowall, R. J. S.; Handbook of Physiology and Biochemistry: Originally "Kirkes" and later "Halliburton's," 1598
Mackworth, N. H., Researches on Measurement of Human Performance, 1526
McManus, J. F. A., Medical Diseases of the Kidney (an atlas and introduction), 506
McMurray, T. P., Practice of Orthopaedic Surgery, 354
Madsen, S., On Classification of Shigella Types, with Special Reference to Flexner Group, 969
Magnetic Fields
  Characteristics of Electrical Discharges in Magnetic Fields, [Guthrie & Wakerling] 209
Maingot, R., editor, Techniques in British Surgery, 1218
Mair, G. F., editor, Studies in Population, 1412
Malaria
  Microscopic Diagnosis of Human Malaria, 1138
Maliniac, J. W., Breast Deformities and Their Repair, 282
Malpractice
  Doctor and Patient and the Law, [Regan] 590
Mann, G., Heterocyclic Derivatives of Phosphorus, Arsenic, Antimony, Bismuth and Silicon, 357
Manske, R. H. F., and Holmes, H. L., editors, Alkaloids: Chemistry and Physiology, 435
Markoff, N., Klinik und Therapie der massiven Magendarmblutung, 1529
Marriage
  Fertility in Marriage: Guide for Childless, [Portnoy & Saltman] 431
  Marriage Analysis: Foundations for Successful Family Life, [Christensen] 884
  Marriage and Family Relationship, [Foster] 1321
  Marriage is What You Make It, [Popenoe] 970
  Sex and Love, Human Venture in Marriage, [Bertocci] 722
  Sex Questions and Answers: Guide to Happy Marriage, [Brown & Kempton] 1012
  Sex Without Fear, [Lewin & Gilmore] 433
Marriott, H. L., Water and Salt Depletion, 723
Martensson, G., Dental Injuries Following Radical Surgery on the Maxillary Sinus. . . . Changes in Sensitivity after Caldwell-Luc Operations, 590
Marvin, H. M., & others, You and Your Heart, 78
Mask of Sanity: Attempt to Clarify Some Issues about So-Called Psychopathic Personality, [Cleckley] 1013
Massage
  Massage and Remedial Exercises in Medical and Surgical Conditions, [Tidy] 357
  Massage reflektorischer Zonen im Bindegewebe bei rheumatischen und inneren Erkrankenungen, [Leube & Dicke] 1598
Maternity
  Safeguarding Motherhood, [DeLee] 1044
Mattice, M. R., Bridges' Food and Beverage Analysis, 77
Maves, P. B., and Cedarleaf, J. L., Older People and the Church, 435
Maxillary Sinus
  Dental Injuries Following Radical Surgery, Sensitivity after Caldwell-Luc Operations, [Martensson] 590
May, R., Meaning of Anxiety, 971
Meat and Meat Foods: Processing and Preservation from Meat Plant to Consumer, [Jensen] 1221
Medical Annual: See Yearbook
Medical Education: See Education
Medical History
  Actios and Amida: Gynaecology and Obstetrics of VIth Century, A.D., [Ricci] 1319
  First Anesthetic: Story of Crawford Long, [Boland] 972
  Illustrations from the Works of Andreas Vesalius of Brussels, [Saunders & O'Malley] 1013
  Immortal Magyar: Semmelweis, Conqueror of Childbed Fever, [Slaughter] 1532
  One Hundred Years of Indiana Medicine, 1849-1919, [Russo] 1321
  R. Shabtai Donnolo (913-985), [Muntner] 808
  William Withering of Birmingham, M.D., F.R.S., F.L.S., [Peck & Wilkinson] 1416
Medical Jurisprudence
  Doctor and Patient and the Law, [Regan] 590
  Rhesus Danger: Its Medical, Moral and Legal Aspects, [McCurdy] 1527
  Trial of Hawley Harvey Crippen, [Young] 78
Medical Missionaries
  Doctors Courageous, [Hume] 1042
Medical Parasitology for Medical Students and Practicing Physicians, [Sawitz] 1222
Medical *Physics*, [Glasser] 882
Medical Quotations: See Quotations
Medical Records
  Unit Medical Records in Hospital and Clinic, [Kurtz] 1045
Medical Service Plans
  Voluntary Prepayment Medical Care Plans, 1134
Medical Statistics: See Statistics
Medicine: See also Medical History; Physicians; Surgeons; Surgery
  Applied Medicine, [Beumont] 723
  Dermatologia e medicina [Comel] 596
  Einführung in die innere Medizin, [Wolf] 1320
  Essentials of Medicine: Basis of Nursing Care, [Emerson & Taylor] 1597
  Future in Medicine: March of Medicine, 1949, [New York Academy] 1135
  Introduction à la médecine interne, [Roskam] 591
  Lehrbuch der inneren Medizin, [Broglie] 594
  Lehrbuch der inneren Medizin, [Lauda] 75; 434
  Lehrbuch der inneren Medizin, [Schwiegk & Jores] 357
  Medicine for Nurses, [Sears] 592
  Medicine Man, Saw-Ge-Mah, a novel, [Gartepy] 1045
  Medicine of the Year: Second Issue 1950 [Youmans] 807
  New Discoveries in Medicine: Their Effect on the Public Health, [Hawley] 593
  Outline of Arabic Contributions to Medicine, [Khairallah] 885
Meduna, L. J., Oneirophrenia: Confusional State, 592
Meinhardt, P., Inventions, Patents and Monopoly, 1597

Book Notices—Continued
Meninges
  Das intrakranielle subdurale, Hamaton, [Krayenbuhl & others] 590
Menninger, K A, Guide to Psychiatric Books with Suggested Basic Reading List, 1528
Menopause
  You'll Live Through It. Facts About the Menopause, [Lincoln] 1045
Menstruation
  Die Physiologie der Zeugung des Menschen, [Knaus] 279
  Menstruation and Its Disorders, [Engle] 280
Mental Disease
  Mask of Sanity· Attempt to Clarify Some Issues about the So-Called Psychopathic Personality, [Cleckley] 1043
  Oneirophrenia· The Confusional State, [Meduna] 592
  Patients in Mental Institutions 1947, [Limburg] 356
  Psychology and Mental Health Contribution to Developmental Psychology, [Hadfield] 1136
  Selective Partial Ablation of the Frontal Cortex, [Mettler] 1527
  Third Mental Measurements Yearbook, [Buros] 210
Mental Hygiene
  Mental Health Program of the Forty-Eight States Report to Governors' Conference, 1528
  Public Health is People, [Ginsburg] 76
Merck Manual of Diagnosis and Therapy 973
Meriam, L, and Schotterbeck, L, Cost and Financing of Social Security, 881
Merrill A P, Chronic Disease Patients and Their Institutional Care, 720
Metabolism
  Metabolic Interrelations: Transactions of the First Conference, New York, N Y, February 7-8, 1949, [Reifenstein] 281
  Metabolism and Function Collection of Papers Dedicated to Otto Meyerhof on His 65th Birthday, [Nachmansohn] 77
  1949 Year Book of Endocrinology, Metabolism and Nutrition, [Thompson] 1527
Mettler, F A Selective Partial Ablation of Frontal Cortex, 1527
Meyerhof Otto
  Metabolism and Function: Collection of Papers Dedicated to . on His 65th Birthday, [Nachmansohn] 77
Microbiology See also Bacteriology
  Annual Review of Microbiology, [Clifton] 807
Microscopy
  McClung's Handbook of Microscopical Technique for Workers in *Animal and Plant Tissues* [Jones] 1529
  Microscopic Diagnosis of Human Malaria, [Field] 1138
Midwifery See Obstetrics
Miles, A, and Learmonth, J, editors, Operative Surgery, 77
Miles A A, and Pirie, N W, editors, Nature of Bacterial Surface, 595
Miller, J G, Experiments in Social Process· Symposium on Social Psychology, 1322
Minckler, J, The Doctor Takes a Farm, 973
Missionaries See Medical Missionaries
Mitchell-Nelson Textbook of Pediatrics, [Nelson] 284
Monsarrat, K. W, Human Desires and Their Fulfilment, 803
Moore, M J: You Can Too! 433
Morehouse, L E, and Cooper, J M, Kinesiology, 1599
Moroney, J, Surgery for Nurses, 433
Motherhood See Maternity; Pregnancy
Moullec, J, Techniques de détermination des groupes sanguins appliquées à la transfusion, 355
Mouth
  Oral and Facial Cancer, [Sarnat & Schour] 1599
  Researches on the Radiotherapy of Oral Cancer, [Wood & Boag] 1136
Moving Pictures
  Der Film als Experiment und Heilmethode, [Lhotsky] 1221
Muntner S, editor, R Shabtai Donnolo (913-985), 808
Muscles
  Das Muskelspiel des Menschen, [Hoepke] 507
  Metabolism and Function, [Nachmansohn] 77
  Physiology of Work and Play, [Riedman] 1414
Muse, M B, Guiding Learning Experience Principles of Progressive Education Applied to Nursing Education, 76
Mycology
  Elements of Medical Mycology, [Swartz] 1413
Nachmansohn, D, editor, Metabolism and Function. Collection of Papers Dedicated to Otto Meyerhof on . His 65th Birthday, 77
National Conference on Cardiovascular Diseases, 1950, 1599
National Conference on Family Life, American Family: Factual Background, 1413
National Conference on Graduate Study in Health Education, Physical Education and Recreation, 804
National Formulary IX, 1531
National League of Nursing Education, Hospital Nursing Service Manual, 77
National Research Council, Nutrition Surveys: Their Techniques and Value, 1043
Natural History
  Nature of Natural History, [Bates] 508
Neck
  Diagnosis and Treatment of Tumors of Head and Neck, [Hendrick & Ward] 1597
Negus, V. E, Comparative Anatomy and Physiology of the Larynx, 805
Nelson, W E, editor, Mitchell-Nelson Textbook of Pediatrics, 284
Neurology See also Brain
  Le système névrovasculaire, [Lazorthes] 885
  Metabolism and Function Collection of Papers Dedicated to Otto Meyerhof on . . . His 65th Birthday [Nachmansohn] 77
  Multiple Sclerosis and Demyelinating Diseases, 1410
  Practical Neurological Diagnosis, [Spurling] 509
  Progress in Neurology and Psychiatry· Annual Review, [Spiegel] 970
  Studies on Lipids in Nervous System, [Brante] 507
  Text-Book of Neuro-Anatomy, [Kuntz] 281
  Tumours of the Sheaths of Peripheral Nerves (Studies on Their Structure, Histogenesis and Symptomatology), [Saxén] 506
Neurosurgery
  Harvey Cushing· Surgeon, Author, Artist, [Thomson] 592
  Practical Neurological Diagnosis, with Special Reference to Problems of Neurosurgery, [Spurling] 509
  Selective Partial Ablation of Frontal Cortex, [Mettler] 1527
New and Nonofficial Remedies, 1950, 1217
New York
  Academy of Medicine, Future in Medicine: March of Medicine, 1949, 1135
  Academy of Medicine, Trends in Medical Education, on, [Ashford] 882
  City's Baby Book Handbook for Parents, 723
Nose See Otorhinolaryngology
Novels See Fiction
Nursery
  Creative Nursery Center· Unified Service to Children and Parents, [Allen] 721
Nurses and Nursing
  Administration of Schools of Nursing, [Williams & Stewart] 1137
  American Red Cross Home Nursing Textbook, 1416
  Cancer· Manual for Public Health Nurses, [Knapp] 507
  Essentials of Medicine: Basis of Nursing Care, [Emerson & Taylor] 1597
  Facilitation of Interstate Movement of Registered Nurses, [Anderson] 284
  Guiding Learning Experience: Principles of Progressive Education Applied to Nursing Education, [Muse] 75
  Hospital Nursing Service Manual, 77
  Introduction to Psychiatric Nursing, [Kalkman] 281
  Lippincott's Quick Reference Book for Nurses, [Young & Allanach] 1322
  Medicine for Nurses, [Sears] 592
  Nursing Care of Surgical Patient, [West & others] 433
  Nursing in Prevention and Control of Tuberculosis [Hetherrington & Eshleman] 1222
  Nutrition in Health and Disease, [Cooper] 971
  Physicians' and Nurses' Concise Medical Encyclopaedia, [Kupper] 881
  Professional Nursing Trends and Adjustments, [Spalding] 1415
  Surgery for Nurses, [Moroney] 433
  Surgical Nursing, [Eliason & others] 1221
  Textbook of Anatomy and Physiology, [Anthony] 1416
  Textbook of Anatomy and Physiology, [Francis & Knowlton] 967
  Textbook of Obstetrics and Obstetric Nursing, [Bookmiller & Bowen] 355
Nutrition See also Diet, Food; Vitamins
  Art and Science of Nutrition, [Hawley & others] 807
  Infant Nutrition· Its Physiological Basis, [Clements] 593
  1949 Year Book of Endocrinology, Metabolism and Nutrition, [Thompson] 1527
  Nutrition and Diet Therapy, [Proudfit & Robinson] 1600
  Nutrition Surveys· Their Techniques and Value, [National Research Council] 1043
  Nutrition in Health and Disease, [Cooper] 971
  Nutritional Improvement of Life, [Sherman] 1414
Obesity
  You Can Too! [Moore] 433
  Stern's Applied Dietetics: Planning and Teaching of Normal and Therapeutic Diets, [Rosenthal & others] 281
Obstetrics
  Aetios of Amida: Gynaecology and Obstetrics of the VIth Century, A D, [Ricci] 1319
  Anxiety in Pregnancy and Childbirth, [Klein & others] 356
  Geburtshilflich-gynakologische Propädeutik und Untersuchungslehre, [Doderlein & Mestwerdt] 355
  Immortal Magyar: Semmelweis, Conqueror of Childbed Fever, [Slaughter] 1532
  Operative Obstetrics Guide to Difficulties and Complications of Obstetric Practice, [Kerr & Moir] 76
  Relaxation and Exercise for Natural Childbirth, [Heardman] 352
  Rhesus Danger; Medical, Moral and Legal Aspects, [McCurdy] 1527
  Synopsis of Obstetrics and Gynaecology, [Bourne] 973
  Textbook of Obstetrics and Obstetric Nursing, [Bookmiller & Bowen] 355
  Training for Childbirth· *Program of* Natural Childbirth with Rooming-In, [Thoms] 352
Occupational Medicine· See Industry
Office Treatment of the Nose, Throat & Ear, [Hollender] 885
Old Age
  Conference on Problems of Aging, [Shock] 355
  Old Age. Some Practical Points in Geriatrics and Gerontology, [Howell] 1322
  Older People and the Church, [Maves & Cedarleaf] 435
Oneirophrenia: The Confusional State, [Meduna] 592
Operations: See Surgery
Ophthalmology
  Clinical Orthoptic Procedure· Reference Book on Clinical Methods of Orthoptics, [Smith] 1220
  Eyes and Industry (Formerly Industrial Ophthalmology) [Kuhn] 1531
  Principles of Ophthalmology, [Henderson] 1222
  Some Relations between Vision and Audition, 1045
  Surgery of Cataract, [Kirby] 1219
  Surgery of the Eye. Injuries, [Callahan] 1600
  Visual Development, [Prince] 505
Origin of Species (reprint of first edition), [Darwin] 971
Orthopedics: See also Fractures
  American Academy of Orthopaedic Surgeons Instructional Course Lectures, 1949, [Blount] 723
  Modern Trends in Orthopaedics, [Platt] 431
  Orthopadische Gymnastik, [Hohmann & Jegel Stumpf] 354
  Practice of Orthopaedic Surgery, [McMurray] 354
Orthoptics
  Clinical Orthoptic Procedure Reference Book on Clinical Methods, [Smith] 1220
Otorhinolaryngology
  Comparative Anatomy and Physiology of the *Larynx, [Negus] 805*
  Experimental Study of Reactions within Nose in Human Subjects During Varying Life Experiences, [Holmes] 508
  Noses, [Holden] 972
  Office Treatment of the Nose, Throat & Ear, [Hollender] 885
Out of My Later Years [Einstein] 352
Oxidation-Reduction Potentials in Bacteriology and Biochemistry, [Hewitt] 1135
Palmer, E D, Stomach Disease as Diagnosed by Gastroscopy, 722
Pancreas
  Chirurgie des Pancreas, [Hess] 595
  Diagnosis of Pancreatic Disease, [Bauman] 436
Paralysis
  Cerebral Palsy, [Pohl] 1222
Parasitology
  Handbook of Medical *Protozoology*, [Hoare] 1526
  Medical Parasitology, [Sawitz] 1222
Parker, R C, Methods of Tissue Culture, 1526
Parviainen, S, Soiva, K, and Ehrnrooth, C A, On the Aetiology of Eclampsia *with Special* Reference to Adrenocortical Hormones, 1042
Pastoral Medicine· See also Religion
  Older People and the Church, [Maves & Cedarleaf] 435
Patents
  Chemical Inventions and Chemical Patents, [Thomas] 77
  Inventions, Patents and Monopoly, [Meinhardt] 1597
  Patent Practice & Management for Inventors and Executives, [Calvert] 805
Paterson, R G, Foundations of Community Health Education, 968

Book Notices—Continued
Pathology: See also Disease
- Arriamento alla patologia genetica dell'uomo, [Giordano] 136
- Clinical Pathology: Application and Interpretation, [Wells] 1138
- Die Wirkungseinheit des Lebens, [Seitz] 1137
- Einführung in die pathologische Physiologie, [Grosse-Brockhoff] 1522
- Fünfzig Jahre Pathologie in Deutschland, [Fischer & Gruber] 501
- Klinische Pathologie der Blutkrankheiten, [Schoen] 436
- Pathologic Physiology: Mechanisms of Diseases, [Sodeman] 1529
- Pathologie du nouveau-né, [Balmes & Levy] 283
- Pathology of Articular and Spinal Diseases, [Collins] 721
- Pathology of Internal Diseases, [Boyd] 1599
- *Tratado de patologia y clinica medicas [Pedro-Pons] 1598*
- Tuberculosis. A Global Study in Social Pathology [McDougall] 723

Patients
- Chronic Disease and Their Institutional Care, [Merrill] 720
- *Doctor and Patient and the Law [Regan] 590*
- Patients in Mental Institutions 1947, [Limburg] 356

Patterson, A M, German-English Dictionary for Chemists 1600
Peale, N V, Art of Real Happiness, 1134
Peck, T W, and Wilkinson, K D, William Withering of Birmingham, M D, F R S F L S, 1116
Pediatrics: See also Children; Infants
- Lehrbuch der Kinderheilkunde, [Degkwitz & others] 1529
- Mitchell-Nelson Textbook of Pediatrics, [Nelson] 284
- Natural History of Bright's Disease: Study from Standpoint of Paediatrics, [Scott] 973

Pedro-Pons, A, Tratado de patologia y clinica medicas, 1598
Peerman, J, Proctology in General Practice, 881
enfield, W, and Rasmussen, T., Cerebral Cortex of Man: Clinical Study of Localization of Function, 1112
enicillin and Streptomycin in the Treatment of Infections, [Keefer] 808
eptic Ulcer
- Personality in Peptic Ulcer, [Sullivan] 1219

erformance
- Researches on Measurement of Human Performance, [Mackworth] 1526

errin, P, L'alcoolisme: Problemes medico-sociaux, problemes economiques, 436
ersonality
- Human Personality and its Minor Disorders [Harrowes] 435
- Personality in Peptic Ulcer, [Sullivan] 1219
- Personality: Systematic Theoretical and Factual Study, [Cattell] 1600

harmacy: See also Chemistry
- Angewandte Pharmakologie, [Hesse] 357
- Chemistry of Organic Medicinal Products, [Jenkins & Hartung] 970
- *Dictionnaire de spécialités pharmaceutiques* 1950, [Vidal] 973
- Fundamental Principles and Processes of Pharmacy, [Burlage & others] 278
- General Report of the Pharmaceutical Survey, 1946-49, [Elliott] 806
- New and Nonofficial Remedies, 1950, 1217
- Sulphonamides, [Hawking & Lawrence] 1527

Physical Chemistry
- Fundamentals of Physical Chemistry for Premedical Students, [Crockford] 509
- Physical Chemistry for Premedical Students, [Amsden] 1528

Physical Education
- Kinesiology, [Morehouse & Cooper] 1599
- Physiology of Work and Play: Textbook of Muscular Activity, [Riedman] 1414
- Preventive and Corrective Physical Education, [Stafford] 1319

Physical Medicine
- Handbook of Physical Medicine and Rehabilitation, 353
- Klinisches Lehrbuch der physikalischen Therapie, [Grober] 281
- Light Therapy, [Kovacs] 1532
- Manual of Physical Therapy, [Kovács] 808
- Massage and Remedial Exercises in Medical and Surgical Conditions, [Tidy] 357

Physicians See also Medicine; Surgeons; Surgery
- biographies, Among the Doctors (autobiography), [Cox] 1045
- biographies Bowery to Bellevue: *Story of New York's First Woman Ambulance Surgeon* (Barringer] 591
- biographies: Happy Toil: Fifty-five Years of Tropical Medicine (autobiography) [Rogers] 595
- biographies: Harvey Cushing: Surgeon, Author, Artist, [Thomson] 592
- biographies, Thomas W Salmon, Psychiatrist, [Bond] 509

Physicians—*Continued*
- biographies, *Tom Brown: Memories, [Brown]* 805
- biographies, *Tom Cullen of Baltimore, [Robinson]* 283
- biographies, *William Withering of Birmingham, M D, F R S, F L S, [Peck & Wilkinson] 1116*
- biographies, Woman's Surgeon: Life Story of J Marion Sims, [Harris] 1137
- Doctor and Patient and the Law, [Regan] 590
- Doctor Takes a Farm, [Minckler] 973
- Doctors Courageous, [Hume] 1012
- Federal Income Tax Guide and Simplified Accounting Record, [Campbell & Liberman] 1526
- One Half the People: Doctors and Crisis of World Health, (reply to review) [Wilson] 334—C
- Physicians' and Nurses' Concise Medical Encyclopaedia, [Kupper] 881
- Physician's Handbook, [Krupp & others] 1219

Physiology: See also Anatomy
- Alkaloids: Physiology and Chemistry, [Manske & Holmes] 435
- Annual Review of Physiolgy, [Hall] 1318
- Asphyxia Neonatorum Its Relation to the Fetal Blood, Circulation and Respiration and Its Effects upon the Brain, [Windle] 972
- Comparative Anatomy *and Physiology of the* Larynx, [Negus] 805
- Die Physiologie der Zeugung des Menschen, [Knaus] 279
- Handbook of Physiology *and Biochemistry*, originally "Kirke's" and Later Halliburton's, [McDowall] 1598
- Hormones: Physiology, Chemistry and Applications, *[Pincus & Thimann] 1116*
- Pathologic Physiology Mechanism of Disease, [Sodeman] 1529
- Physiology and Pathology of Exposure to Stress, [Selye] 1414
- Physiology of Tissues and Organs [Lee] 356
- Physiology of Work and Play: Textbook in *Muscular Activity*, [Riedman] 1414
- Textbook of Anatomy and Physiology *[Anthony] 1416*
- Textbook of Anatomy and Physiology, [Francis & *Knoulton*] 967

Physics
- Medical Physics, Volume II, [Glasser] 882

Pickles, W N, Epidemiology in Country Practice, 1413
Pincus, G, editor, Recent Progress in Hormone Research. Proceedings of Laurentian Hormone Conference, 1596
Pincus, G, and Thimann, K. V, Hormones Physiology, Chemistry and Applications 1416
Pituitary
- Simmonds' Disease: Extreme Insufficiency of Adenohypophysis, [Farquharson] 1322

Plant, J S, The Envelope: Study of the Impact of the World upon the Child, 594
Plastic and Reconstructive Surgery: Manual of Management, [Smith] 1218
Platt, H, editor, Modern Trends in Orthopaedics, 431
Play
- Child Treatment and Therapy of Play, [Jackson & Todd] 506

Playgrounds: Their Administration and Operation, [Butler] 1220
Pneumoencephalogram: See Brain
Pneumothorax
- Traité du pneumothorax extra-pleural, [Le-Foyer & Delbecq] 431

Poe, Edgar Allan
- Life and Works of Edgar Allan Poe Psycho-Analytic Interpretation, [Bonaparte] 970

Poetry
- The Doctor Takes a Farm, [Minckler] 973

Pohl, J F., Cerebral Palsy, 1222
Poisoning: See Toxicology
Popenoe, P, Marriage is What You Make It, 970
Population
- Studies in *Population*, [Mair] 1412

Portnoy, L, and Saltman, J, Fertility in Marriage; Guide for Childless, 431
Pregnancy
- Anxiety in Pregnancy and Childbirth, [Klein & others] 356
- Operative Obstetrics: Guide to the Difficulties and Complications of Obstetric Practice, [Kerr & Moir] 76
- Safeguarding Motherhood, [DeLee] 1044

Premature Baby, [Crosse] 808
Premature Infant: Medical and Nursing Care, [Hess & Lundeen] 721
Primer for Diabetic Patients, [Wilder] 284
Prince, J. H, Visual development, Volume 1, 505
Proctology
- Proctology in General Practice, [Peerman] 881

Prostate
- *Die Hypertrophie* und das Carcinom der Prostata, [Hryntschak] 1044

Prostheses
- Amputation Prosthetic Service, [Daniel] 353

Proteins
- Cold Spring Harbor *Symposia on Quantitative* Biology, 883

Protozoology
- *Handbook of Medical Protozoology*, [Hoare] 1526

Proudfit, F. T, and Robinson, C H, Nutrition *and Diet Therapy, 1600*
Psychiatry. See *also* Mental Disease; Mental Hygiene
- Aus den Anfängen der Psychoanalyse. Briefe *an Wilhelm Fliess*, [Freud] 1414
- Exhibitionism, [Rickles] 590
- Guide to Psychiatric Books with Suggested Basic Reading List, [Menninger] 1528
- Handwriting Analysis as a Psychodiagnostic *Tool [Sonnemann] 505*
- Introduction to Psychiatric Nursing, [Kalkman] 281
- Life and Works *of Edgar Allan Poe*, A Psycho-Analytic Interpretation, [Bonaparte] 970
- Principles of Psychodynamics, [Weiss] 357
- Progress in Neurology and Psychiatry: Annual Review, [Spiegel] 970
- Psychiatry for Social Workers, [Lowrey] 1532
- Question of Lay Analysis Introduction to Psychoanalysis, [Freud] 282
- Saints, Sinners and Psychiatry, [Anderson] 1412
- Sexual Criminal: Psychoanalytical Study, *[de River] 806*, (comment on review) [Guttmacher] 1586—C
- Soviet Psychiatry, [Wortis] 1219
- Text-Book of Psychiatry for Students and Practitioners, [Henderson] 884
- Thomas W Salmon, Psychiatrist, [Bond] *509*
- Treatment in Psychiatry, [Diethelm] 596
- Yearbook of Psychoanalysis, [Lorand] 507

Psychology
- Art of Real Happiness, [Peale] 1134
- Experiments in Social Process: Symposium on Social Psychology, [Miller] 1322
- Color Psychology and Color Therapy, [Birren] 280
- Der Film als Experiment und Heilmethode, [Lhotsky] 1221
- Human Desires and Their Fulfilment, [Monsarrat] 803
- Klinische Psychologie, [Hellpach] 1042
- Medizinische Psychologie, [Kretschmer] *209*
- Psychologist in Industry, [Steiner] 280
- Psychology and Mental Health: A Contribution to Developmental Psychology, [Hadfield] 1136
- Psychology of Exceptional Children, [Garrison] 509
- Textbook of Abnormal Psychology, [Dorcus] 1532
- Textbook of Abnormal Psychology, [Landis & *Bolles] 284*
- Third Mental Measurements Yearbook, [Buros] 210

Psychosomatic Medicine; Its Principles and Applications, [Alexander] 882
Psychotherapy
- Psychotherapeutische Studien, [Kretschmer] 209

Public Assistance Code of Illinois and Related Laws Affecting Public Aid, 1949-1951, 284
Public Health. See Health
Puffer, R R, Practical Statistics in Health and Medical Work, 353
Pullen, R L, editor, Communicable Disease, 1217
Pye's Surgical Handicraft, [Bailey] 1218
Question of Lay Analysis An Introduction to Psychoanalysis, [Freud] 282
Questions and Answers, Volume 3, [Hammond] 280
Quotations
- Amusing Quotations for Doctors and Patients, *[Fabricant] 722*

Races. Study of the Problems of Race Formation in Man, [Coon & others] 1044
Radioactivity See also Atomic Energy
- Biological Studies with Polonium, Radium and Plutonium, [Fink] 883

Radiotherapy
- Researches on the Radiotherapy of Oral Cancer, *[Wood & Boag]* 1136
- Short Textbook of Radiotherapy, [Walter & Miller] 972

Radium
- Biological Studies with Polonium, Radium and Plutonium, [Fink] 883
- Malignant Disease and Its Treatment by Radium, [Cade] 1317

Records. See Medical Records
Recreation
- Playgrounds Their Administration and Operation, [Butler] 1220

Rectum. See Proctology
Red Cross: See American Red Cross

Book Notices—Continued
Regan, L. J., Doctor and Patient and the Law, 590
Rehabilitation
  Counseling Handicapped in Rehabilitation Process, [Hamilton] 1411
  Handbook of Physical Medicine and Rehabilitation, 353
  Principles and Practices of Rehabilitation, [Kessler] 591
Reich, W. J, and Nechtow, M. J, Practical Gynecology, 1598
Reifenstein, E C, Jr, Metabolic Interrelations: Transactions of the First Conference New York, N. Y. February 7-8, 1949, 281
Relaxation and Exercise for Natural Childbirth, [Heardman] 352
Religion: See also Pastoral Medicine
  Forgotten Religions (Including Some Living Primitive Religions), [Ferm] 284
  Saints, Sinners and Psychiatry, [Anderson] 1412
Research
  Methods in Medical Research, [Comroe] 78
Respiratory Function in Laryngectomized Patients, [Heyden] 1138
Rh Factor
  Rhesus Danger; Medical, Moral and Legal Aspects, [McCurdy] 1527
Rheumatic Diseases
  Manual of Rheumatic Diseases, [Holbrook & Hill] 967
Rheumatism. See Arthritis
Ricci, J V, *translator, Aetios of Amida*: The Gynaecology and Obstetrics of the VIth Century, A D, 1319
Rickles, N K., Exhibitionism, 590
Riedman, S R, Physiology of *Work and Play*: Textbook in Muscular Activity, 1414
Rimpau, W., Die Leptospirose, 1136
Roberts, L, Aids to Public Health, 1322
Robinson, J, Tom Cullen of Baltimore, 283
Roentgenology
  Arthropathies: Handbook of Roentgen Diagnosis, [De Lorimier] 210
  Lehrbuch der Rontgendiagnostik, [Schinz & others] 885
  Supervoltage Roentgentherapy, [Buschke & others] 1317
  Text-Book of X-Ray Diagnosis by British *Authors in Four Volumes, [Shanks & Kerley]* 1221
  Urologic Roentgenology, [Wesson] 969
Rogers, L, Happy Toil: Fifty-Five Years of Tropical Medicine, 593
Rose's Laboratory Handbook for Dietetics, [Taylor & MacLeod] 1135
Rosenthal, H, Baker, P C, and McVey, W. A, *Stern's Applied Dietetics*, 281
Roskam, J, Introduction à la médecine interne, 591
Russia
  Soviet Psychiatry, [Wortis] 1219
Russian Impact on Art, [Alpatov] 1318
Russo, D R editor, One Hundred Years of Indiana Medicine, 1849-1949, 1321
Safeguarding Motherhood, [De Lee] 1044
Saints, Sinners and Psychiatry, [Anderson] 1412
Salmon, Thomas W
  Thomas W Salmon, Psychiatrist, [Bond] 509
Salmonella
  Diagnosis of Salmonella Types, [Kauffmann] 1411
Salt
  Salt-Free Diet Cook Book, [Conason & Metz] 1135
  Water and Salt Depletion, [Marriott] 723
Samuels S S, Management of Peripheral Arterial Diseases, 1041
Saner, F. D, editor Breast: Structure, Function, Disease, 1600
Sarnat, B G, and Schour, I., Oral and Facial Cancer, 1599
Sarroste, J, and Carillon, R, Exercices chirurgicaux (de l'amphithéatre à la salle d'opérations), 1320
Saunders, J B. de C M, and O'Malley, C D, Illustrations from Works of Andreas *Vesalius of Brussels*, 1043
Saw-Ge-Mah (Medicine Man) a novel, [Garlepy] 1045
Sawitz, W. G, Medical Parasitology, 1222
Saxen, E, Tumours of the Sheaths of the Peripheral Nerves, 506
Scalds. See Burns
Schinz, H R, Baensch, W E, Friedl, E, and Uehlinger E, Lehrbuch der Rontgendiagnostik, 885
Schistosomiasis in South Central Africa: Clinico-Pathological Study, [Gelfand] 1220
Schlink, H H, Gynaecology, 802
Schmidt, C F., Cerebral Circulation in Health and Disease, 1319
Schoen, R, Klinische Pathologie der Blutkrankheiten, 436
Schwarz, K, Jewish Artists of the 19th and 20th Centuries, 210
Schwiegk, H, and Jores, A, Lehrbuch der inneren medizin, 357
Science
  Phenomena, Atoms and Molecules, [Langmuir] 723
Sclerosis
  Multiple Sclerosis and Demyelinating Diseases, 1410
Scott, G E M, Natural History of Bright's Disease, 973
Sears, W. G, Medicine for Nurses, 592
Sédallian, P, and Sohier, R, Précis d'hygiène et d'épidémiologie, 967
Segal, M S, Management of Patient with Severe Bronchial Asthma, 282
Seitz, L, Die Wirkungseinheit des Lebens, 1137
Selye, H, Physiology and Pathology of Exposure to Stress, 1414
Selye H, and Stone, H, On Experimental Morphology of Adrenal Cortex, 1530
Semmelweis, Ignaz Philipp
  Immortal Magyar Semmelweis, Conqueror of Childbed Fever, [Slaughter] 1532
Sex. See also Marriage; Sterility
  Biological Actions of Sex Hormones, [Burrows] 1134
  Exhibitionism, [Rickles] 590
  Love and Marriage, Human Venture in Sex, [Bertocci] 722
  Sex Questions and Answers: Guide to Happy Marriage, [Brown & Kempton] 1042
  Sex Without Fear, [Lewin & Gilmore] 433
  Sexual Criminal Psychoanalytical Study, [de River] 806; (comment on review) [Guttmacher] 1586—C
  Sexual Fear, [Hirsch] 1136
  Sexual Perversions and Abnormalities: Study in Psychology of Paraphilia, [Allen] 282
  Trastornos del crecimiento y del desarrollo sexual, [Cañadell] 78
  When Young People Ask About Sex, [Klemer] 434
Shabtai Donnolo, R, (913-985), [Muntner] 808
Shafar, J., Vitamins in Medical Practice, 432
Shanks, S C, and Kerley, P, editors, Text-Book of X-Ray Diagnosis by British Authors in Four Volumes, 1221
Shaw, J H, Individual Sports for Men, 802
Sherman, H C, Nutritional Improvement of life, 1414
Shigella, On Classification of the Shigella Types, [Madsen] 969
Shock, N W., editor, Conference on Problems *of Aging, 355*
Simmonds' Disease: Extreme Insufficiency of the Adenohypophysis, [Farquharson] 1322
Sims, J Marion
  Woman's Surgeon: The Life Story of J. Marion Sims, [Harris] 1137
Singer, C, History of Biology: General Introduction to the Study of Living Things, 507
Singer, J J, Differential Diagnosis of Chest Diseases, 356
Skin: See Dermatology
Slaughter, F. G, Immortal Magyar: Semmelweis, Conqueror of Childbed Fever, 1532
Smith, F, Plastic and Reconstructive Surgery: A Manual of Management, 1218
Smith, W, Clinical Orthoptic Procedure, 1220
Social Security
  Cost and Financing of Social Security, [Meriam & Schotterbeck] 881
Sociedad argentina de proctologia, Colitis ulcerosa grave, 807
Society for General Microbiology Symposium: Nature of the Bacterial Surface, [Miles & Pirie] 595
Sociology
  Experiments in Social Process: Symposium on Social Psychology, [Miller] 1322
  Psychiatry for Social Workers, [Lowrey] 1532
  Tuberculosis. Global Study in Social Pathology, [McDougall] 723
Sodeman, W A, editor, Pathologic Physiology: Mechanisms of Disease, 1529
Soil
  Relation of Soil Content to Human Longevity, [Brooks & Brooks] 1044
Sonn[illegible] Analysis as a [illegible] in General [illegible]
Soskin, S, editor, Progress in Clinical Endocrinology, 1045
Soviet Psychiatry, [Wortis] 1219
Spalding, E K, Professional Nursing: Trends and Adjustments, 1415
Speech Problems of Children: Guide to Care and Correction, [Johnson] 1135
Spiegel, E A, Progress in Neurology and Psychiatry. Annual Review, 970
Spine
  On Low-Back Pain with Special Reference to Value of Operative Treatment with Fusion, [Unander-Scharin] 1532
  Pathology of Articular and Spinal Diseases, [Collins] 721
Spurling, R G, Practical Neurological Diagnosis, 509
Stafford, G T., Preventive and Corrective Physical Education, 1319
Starr, K W, Causation and Treatment of Delayed Union in Fractures of Long Bone, 1134
State Board
  Medical State Board Questions and Answers, [Goepp & Flippin] 210
Statistics
  Practical Statistics in Health and Medical Work, [Puffer] 353
  Principles of Medical Statistics, [Hill] 78
Steincrohn, P. J, How to Stop Killing Yourself, 283
Steiner, M E, Psychologist in Industry, 280
Sterility
  Human Fertility and Problem of the Male, [Farris] 803
Sterilization
  Human Sterilization: Techniques of Permanent Conception Control, [Dickinson & Gamble] 1526
Stern's Applied Dietetics, [Rosenthal & others] 281
Stillbirths Their Epidemiology and Social Significance, [Sutherland] 1042
Stomach Disease as Diagnosed by Gastroscopy, [Palmer] 722
Stories See Fiction
Streptomycin
  Minutes of the Eighth Streptomycin Conference Held on November 10-13, 1949, 723
  Penicillin and Streptomycin in the Treatment of Infections, [Keefer] 808
Stress
  On Experimental Morphology of Adrenal Cortex, [Selye & Stone] 1530
  Physiology and Pathology of Exposure to Stress, [Selye] 1414
Suggestion
  Clinical Applications of Suggestion and Hypnosis, [Heron] 1523
Sullivan, A J, Personality in Peptic Ulcer, 1219
Suprarenals: See Adrenals
Sulphonamides, [Hawking & Lawrence] 1527
Surgeons
  Bowery to Bellevue: Story of New York's First Woman Ambulance Surgeon, [Barringer] 591
  Harvey Cushing. Surgeon, Author, Artist, [Thomson] 592
  Woman's Surgeon Life Story of J. Marion Sims, [Harris] 1137
Surgery
  Advances in Surgery, [Andrus] 356
  Breast Deformities and Their Repair, [Malliniac] 282
  Chirurgie arterielle: Techniques-indications-résultats, [Arnulf] 807
  Chirurgie der Urogenitalorgane: Indikation und Technik, [Boeminghaus] 1410
  Chirurgie des Pancreas, [Hess] 595
  Ch[illegible] Grenzfragen,
  De[illegible] Surgery on [illegible] 590
  Exercices chirurgicaux (de l'amphithéatre à la salle d'opérations), [Sarroste & Carillon] 1320
  Genito-Urinary Surgery, [Walker & Walker] 1136
  Nursing Care of Surgical Patient, [West & others] 433
  On Low-Back Pain with Special Reference to Value of Operative Treatment with Fusion, [Unander-Scharin] 1532
  Operative Obstetrics [Kerr & Moir] 76
  Operative Surgery, [Miles & *Learmonth*] 77
  Plastic and Reconstructive Surgery, Manual of Management, [Smith] 1218
  Practice of Orthopaedic Surgery, [McMurray] 354
  Pye's Surgical Handicraft, [Bailey] 1218
  Studies in Lobotomy, [Greenblatt & others] 1317
  Surgery for Nurses, [Moroney] 433
  Surgery of Cataract, [Kirby] 1219
  Surgery of the Eye: Injuries, [Callahan] 1600
  Surgical Nursing, [Eliason & others] 1221
  Surgical Treatment for Abnormalities of Heart and Great Vessels, [Gross] 1531
  Surgical Treatment of Facial Injuries, [Kanzanjian & Converse] 504
  Techniques in British Surgery, [Maingot] *1218*
  Urological Surgery, [Dodson & Boyer] 594
  World Surgery 1950, [Zieman] 1526
Sutherland, I, Stillbirths Their Epidemiology and Social Significance, 1042
Swartz, H, Allergy, What It Is & What to Do About it, 596
Swartz, J H, Elements of Medical Mycology, 1413
Tapia, M, Las formas anatomoclinicas de la tuberculosis tráqueobronquial, 1531
Tax
  Physicians Federal Income Tax Guide and Simplified Accounting Record, [*Campbell* & Liberman] 1526
  Taxes and Economic Incentives, [Kimmel] 1416
Taylor, C. M., and MacLeod, G, *Rose's Laboratory* Handbook for Dietetics, 1135
Teeth. See Dentistry

Book Notices—Continued
Thannhauser, S J., Lipidoses: Diseases of Cellular Lipid Metabolism, 135
Therapeutics: See also Pharmacy
  Merck Manual of Diagnosis and Therapy, 973
Thomas, E, Chemical Inventions and Chemical Patents, 77
Thompson, W. O, editor, 1919 Year Book of Endocrinology, Metabolism and Nutrition, 1527
Thoms, H, Training for Childbirth: Program of Natural Childbirth With Rooming-In, 352
Thomson, E H., Harvey Cushing: Surgeon, Author, Artist, 592
Thomson-Walker, J, and Walker, K, editors, Genito-Urinary Surgery, 1136
Thorax
  Differential Diagnosis of Chest Diseases, [Singer] 356
Throat. See Otorhinolaryngology
Thrombosis in Arteriosclerosis of Lower Extremities, [Edwards] 722
Tidy, N. M, Massage and Remedial Exercises in Medical and Surgical Conditions, 357
Tissues: See Cytology; Histology
Toxicology
  Chemistry of Industrial Toxicology, [Elkins] 802
Trachea
  Las formas anatomoclinicas de la tuberculosis tráqueobronquial, [Tapia] 1541
Trauma
  Dental Injuries Following Radical Surgery on Maxillary Sinus
  Experimental Study on Air Blast Injuries, [Clemedson] 357
  Surgical Treatment of Facial Injuries, [Kanzanjian & Converse] 504
Treatment: See Therapeutics
Trial of Hawley Harvey Crippen, [Young] 78
Tropical Medicine
  Happy Toil, Fifty-Five Years of Tropical Medicine, [Rogers] 593
  Schistosomiasis in South Central Africa; A Clinico-Pathological Study, [Gelfand] 1220
Tuberculosis
  B C G. Vaccination in Theory and Practice, [Irvine] 1411
  Bronchoscopy in Pulmonary Tuberculosis, [Froste] 1531
  Chemotherapie der Tuberkulose mit den Thiosemikarbazonen, [Domagk] 1137
  Course and Prognosis in Primary Tuberculosis with Erythema Nodosum in Children, [Holmdahl] 883
  Die Tuberkulose vom Standpunkt des Internisten, [Kutschera-Aichbergen] 1320
  Las formas anatomoclínicas de la tuberculosis tráqueobronquial en sus relaciones con la tuberculosis pulmonar del niño y del adulto, [Tapia] 1531
  Nursing in Prevention and Control of Tuberculosis, [Hetherrington & Eshleman] 1222
  Traité du pneumothorax extra-pleural, [Le-Foyer & Delbecq] 431
  Tuberculosis: A Global Study in Social Pathology, [McDougall] 723
Tumors. See also Cancer
  Diagnosis and Treatment of Tumors of Head and Neck, [Ward & Hendrick] 1597
  Tumours of the Sheaths of Peripheral Nerves, [Saxén] 506
Uebermuth, H, Chirurgisch-gynakologische Grenzfragen, 1134
Unander-Scharin, L, On Low-Back Pain with Special Reference to Value of Operative Treatment with Fusion, 1532
United States Atomic Energy Commission, Seventh Semiannual Report, January 1950, 881
Urethritis
  Non-Gonococcal Urethritis, [Harkness] 1222
Urology
  Chirurgie der Urogenitalorgane; Indikation und Technik, [Boeminghaus] 1410
  Essential Urology, [Colby] 283
  Medical Diseases of the Kidney, [McManus] 506
  Natural History of Bright's Disease: Study from Standpoint of Paediatrics, [Scott] 973
  Non-Gonococcal Urethritis, [Harkness] 1222
  Urologic Roentgenology, [Wesson] 969
  Urological Surgery, [Dodson & Boyer] 594
Uterus
  Le Cancer du corps utérin, [Chalnot & Beau] 1138
Vagina
  Cytology of Human Vagina, [Allende & Orias] 1530
  Primary Carcinoma of Vagina, [Livingstone] 592
Varicose Veins, [Foote] 75
Venereal Diseases
  Text-Book of Venereal Diseases, [Wilcox] 1529
Vesalius, Andreas
  Illustrations from the Works of Andreas Vesalius of Brussels, [Saunders & O'Malley] 1043
Veterans Administration
  Minutes of the Eighth Streptomycin Conference, 1919, 723
  Cost and Financing of Social Security, [Meriam & Schotterbeck] 881
Vidal, L, Dictionnaire de spécialités pharmaceutiques 1950, 973
Viruses
  Pathogenesis and Pathology of Viral Diseases, [Kidd] 1532
Vision. See Ophthalmology
Vitamins
  Human Milk: Wartime Studies of Certain Vitamins and Other Constituents, [Kon & Mawson] 1412
  Vitamins in Medical Practice, [Shafar] 132
  Vitaminology. The Chemistry and Function of the Vitamins, [Eddy] 210
Voss, H, and Herrlinger, R, Taschenbuch der Anatomie, 1015
Waksman, S. A, Actinomycetes: Their Nature, Occurrence, Activities, and Importance, 505
Walker, J. T., Genito-Urinary Surgery, 1136
Walker, K, editor, Genito-Urinary Surgery, 1136
Wallin, J. E W, Children with Mental and Physical Handicaps, 883
Walter, J., and Miller, H, Short Textbook of Radiotherapy, 972
War: See Veterans
Ward, G E, and Hendrick, J. W., Diagnosis and Treatment of Tumors of Head and Neck, 1597
Water and Salt Depletion, [Marriott] 723
Weiss, E, Principles of Psychodynamics, 357
Wells, B B., Clinical Pathology, 1138
Wessen, M. B., Urologic Roentgenology, 969
West, J. P., Keller, M W., and Harmon, E, Nursing Care of Surgical Patient, 433
Wilcox, R. R, Text-Book of Venereal Diseases, 1529
Wilder, R. M., Primer for Diabetic Patients, 281
Williams, D. R, Administration of Schools of Nursing, 1137
Williams, R H, editor, Textbook of Endocrinology, 852
Williams, R T, editor, Biochemical Aspects of Genetics, 1138
Wilson, C. M, One Half the People: Doctors and Crisis of World Health, (reply to review) 334—C
Windle, W. F., Asphyxia Neonatorum: Its Relation to the Fetal Blood, Circulation and Respiration and Its Effects upon the Brain, 972
Withering, William
  William Withering, of Birmingham, M D., F R S, F L S, [Peck & Wilkinson] 1416
Wolf, H. J., Einführung in die innere Medizin, 1320
Wood, F. A. P., and Boag, J W., Researches on the Radiotherapy of Oral Cancer, 1136
Woman's Surgeon: Life Story of J. Marion Sims, [Harris] 1137
World Health
  One Half the People: Doctors and Crisis of World Health, (reply to review) [Wilson] 334—C
World Health Organization
  Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, 723
World Surgery 1950, [Zieman] 1526
Wortis, J, Soviet Psychiatry, 1219
Yearbook
  Annual Review of Microbiology, [Clifton] 807
  Annual Review of Physiology, [Hall] 1318
  Medicine of the Year: Second Issue 1950, [Youmans] 807
  1949 Year Book of Endocrinology, Metabolism and Nutrition, [Thompson] 1527
  Progress in Neurology and Psychiatry: Annual Review, [Spiegel] 970
  Third Mental Measurements Yearbook, [Buros] 210
  World Surgery 1950, [Zieman] 1526
You and Your Heart, [Marvin] 78
You Can Too! [Moore] 433
You'll Live Through It: Facts About the Menopause, [Lincoln] 1045
Young, H, and Allanach, M E, Lippincott's Quick Reference Book for Nurses, 1322
Youmans, J. B, Medicine of the Year. Second Issue, 1950, 807
Young, F., editor, Trial of Hawley Harvey Crippen, 78
Zahl, P. A, Blindness: Modern Approaches to the Unseen Environment, 595
Zieman, S A.; World Surgery 1950, 1526
Zweifach, B W, and Shorr, E, Factors Regulating Blood Pressure: Transactions of the Third Conference May 5-6, 1949, New York, N. Y., 968

C

CCK-179, hydergin treatment of peripheral circulation disorders, [Eichler] 1038—ab
C.I.O.. See Industrial Trade Unions
CADAVERS. See also Autopsies; Cremation; Undertakers
  anatomical acts, disposal of human body; state laws on, (Bureau report) 866
  testamentary disposition of dead bodies, 654
CAFFEINE. See also Coffee
  action in hypertension [Sebok] 1409—ab
CALCIFICATION: See also Lungs
  presenile arterial, 359
CALCIUM
  calcium and glycine carbonate, N.N.R., (Schenley), 314
  in Blood: See Blood
  intramuscularly or intravenously, 1325
  metabolism with calcium-poor diet, [Fontaine] 801—ab
  treatment of intestinal and gastric perfusion in severe chronic uremia, [Maluf] 1029—ab
CALCULI: See Gallbladder; Kidneys; Urinary System
CALIFORNIA
  socialized medicine, [Askey] 200—C; [Koontz] 860—C
CALORIES
  integration of caloric and protein intake, [Radvin & Gimbel] *979
CAMPBELL, PAUL A., director of research, 1101
CANADA
  allergy map for, by American Academy of Allergy, 1194
  medical schools approved in, *114; *147
CANCER: See also Adenocarcinoma; under name of organ or region affected
  American Cancer Society, (aids state control program, Illinois) 474
  anticancer polysaccharides, 932—E
  arsenical [Frank] 500—ab
  cells in prostatic secretion, [Jonsson] 1311—ab
  Chorionic: See Chorionic Carcinoma
  clinic, (Denver) 190; (Carbondale, Illinois) 770
  clinic directory (state), New York, 1491
  conference, state, Michigan, 324
  control, detection centers, Pa, 475
  control, detection unit, environmental, 1194
  control program, secondary school cancer education, Pa, 538
  control, report on biopsy program, Kentucky, 770
  control, state laws on, (Bureau report) 861
  course at U. of Pennsylvania, 403
  Detection: See Cancer control
  Diagnosis: See also Cancer control
  diagnosis, beta glucuronidase studies in cancer of cervix, [Kadson & others] *892
  diagnosis, Black serum test [Teperson] 707—C
  diagnosis, Conference on Cancer Diagnostic Tests, 472
  diagnosis, cytologic detection, in prostate, [Hock] 421—ab
  diagnosis, cytologic, in lung, [Farber & others] *1
  diagnosis, irritant action of iodoacetic acid, [Flesch] 1110—C
  diagnosis, sternal puncture for, [Bruggemann] 587—ab
  diagnosis tests, criteria for evaluating issued by National Cancer Institute, 769
  diagnosis, total uterine sampling in cytological detection, [Doyle] 957—ab
  etiology: egg white as carcinogenic factor, [Hartmann] 74—ab
  etiology: nitrogen mustards as cancer inducing agents, [Griffin & others] 571—C
  etiology: ovarian hilus cells and endometrium cancer, [Goldstein] 200—C
  etiology: rubber manufacturing, 597
  etiology: tobacco smoking, [Deibert] 64—C; [Levin] 782—C
  Gastrointestinal Cancer: Problem of Early Diagnosis, (film review) 708
  hospital, James Ewing Hospital dedicated, N Y, 324
  in infants, uterus cervix, [Heckel] 422—ab
  metastases, ACS serum for, [Costa Bertani] 429—ab
  metastases, lung resection for, [Seiler] 267—ab
  metastases, normal pathways for, in uterine cancer, [Arneson] 67—ab
  metastases (osteolytic) from breast, hypercalcemia in, [Swyer] 415—ab
  metastases to bone from breast, roentgen and steroid hormone therapy, (Council report) [Garland & others] *997
  metastases to cervical lymph nodes, irradiation for, [Martin] 875—ab
  metastases to liver from sigmoid, 26 years survival, [Solomon & Kreps] *221
  metastases to lung from breast, testosterone for, [Wolff] 878—ab
  metastases to lung from thyroid, radioactive iodine for, [Freedberg & others] *16
  metastases to placenta, [Bender] 71—ab
  National Cancer Hospital of America, temporary injunction prevents disposal of funds, 1577
  National Cancer Institute, (summary of cancer control facilities) 1188

CANCER—Continued
  precancerous condition, Paget's disease of nipple, 1048
  [illegible] polyps of rectum and [illegible] —ab
  [illegible]ntrol
  [illegible] *19
  research and nuclear studies [Bruner] 583—ab
  research at University of Chicago, 1576
  research building, Utah, 1492
  research Damon Runyon Memorial Fund, 1385
  research exchange fellowship, British-American, 477
  research, furniture dealers aid Chicago, 1191
  research, Genetics Research Laboratory, Calif, 770
  research, Sloan Kettering Clinic for, (Dr Bronk named to) 1192
  seminar, Southeastern States Fourth Annual 855
  teaching and research, grant for, Missouri, 1273
  teaching clinic Minnesota, 190
  treatment ACTH and cortisone, [Spies] 1036—ab, [Taylor & others] *1058
  treatment, colchicine, 1198
  treatment, identify regional lymph nodes by staining during operation, [Weinberg] 270—ab
CANCRUM Oris See Stomatitis, gangrenous
CANDIDA See Moniliasis
CANNED *Products for Infants*· See Infants, feeding
CAPITOL CLINIC A M A 's Washington's Office publications, 637
CARAMIPHEN (panparnit, parpanit)
  treatment of congenital spastic paralysis, [Jersild] 1037—ab
  treatment of paralysis agitans, [Winther] 966—ab
CARBOHYDRATES See also Dextrose, Honey, Sugar
  in diet in jaundice, [Steigmann] *1077
  metabolism, effect of ACTH, [Overbeck] 1522—ab
  metabolism, effect of ACTH and cortisone, *[Sprague & others]* *1342
  metabolism, second hormone of, produced in pancreas glucagon, *[Gaede] 1131—ab*
CARBON DIOXIDE
  changes during and after ACTH and cortisone, *[Sprague & others] *1344*
  combining power, 359
  control respiration by, 516—ab
  in oxygen, administer in carbon monoxide poisoning, *31
CARBON DISULFIDE
  pretoxicosis test, Paris, 256
CARBON MONOXIDE
  exposure to, 975
  poisoning, 1601
  poisoning, inhalational therapy, *31
  poisoning placenta barriers in, [Martland] 1203—ab
CARBON TETRACHLORIDE
  nephrosis congestive heart failure in, [Friedberg] 1025—ab
  poisoning, [Diaz-Rivera] 273—ab
CARBOXYHEMOGLOBIN
  carbon monoxide poisoning, 1601
CARCINOGENESIS· See Cancer etiology
CARCINOMA See Cancer
CARDIA
  cancer with partial thoracic stomach, [Smithers] 71—ab
CARDIAC See Heart
  Muscle See Myocardium
CARDIOVASCULAR DISEASE See also Blood Vessels disease, Heart disease
  dorsal auscultation in, [Lian] 718—ab
  Hypertensive See Blood Pressure High
  treatment, persistence of drug action in relation to dosage [Cattell] *889
  trigeminal reflex in circulatory diseases, [Brauch] 589—ab
CARDIOVASCULAR SYSTEM See also Arteries Blood Vessels, Heart, Vasomotor System, Veins
  anomalies (congenital), surgical therapy, [Humphrey] 1030—ab
  effect of intranasally administered mecholyl, *[Nathanson] 575—ab*
  effects of norepinephrine, [Bayer] 798—ab
  observations in dystrophic myotonica, [De *Wind & Jones*] *299
CARE
  Philippines needs packages and books, 58
CAREY Lectures See *Lectures*
CARIBBEAN rabies conference, report on, 559
CARIES See Teeth caries
CARINAMIDE
  combined penicillin-carinamide therapy, [Astaldi] 501—ab
  toxicity, *[Boger] 786—ab*
CAROTID SINUS
  syndrome with epilepsy, surgical relief, [Rab*win & Merliss*] *463
CARPUS See Wrist
CARRIERS See Disease carriers
CARROTS
  Monarch Brand Dietetic Pack Sliced, 1092
CARS See *Automobiles*
CARTER Extracts See Rh Factor
CARTY Medal See Prizes
CASE
  Finding See Cancer control, Tuberculosis
  Records See Medical Record Librarians
CAST
  wedging, treatment of congenital clubfoot, *[Hart] 790*—ab
CASTLE, intrinsic factor, [Hall] 1214—ab
CASTRATION, Female. See Ovary surgery
CASUALTIES See Accidents, Automobile accidents, Disasters, Korean War
CAT See Cats
CATALASES
  research on, by Hugo Theorell, 1020
CATARACT
  bilateral *after parathyroid tetany, 809*
  complications glaucoma in same patient, 724
  vitamin C cause? 1420
CATASTROPHES. See Disasters
CATHARTICS
  mineral oil, lipid pneumonia from, [Baron] 1309—ab
  prune juice, 1420
  "saraka," use in diverticulosis, 888
CATHETERIZATION See Heart catheterization
CATHETERS
  sterilization, 211
CATS
  cat scratch, disease, [Debré] 718—ab
CAVAL Veins See Vena Cava
CAVERNOSITIS
  Peyronie's disease, 974
CAVERNOSTOMY
  for residual cavity, [Murphy] 1125—ab
CAVITIES See Lungs, cavitation, Teeth, caries; Tuberculosis of Lungs
CECUM
  diverticulitis (acute), [Byrne & others] *823
CELEBRATED Persons See Great Men
CELIAC DISEASE
  hereditary aspects, 1536
CELLOTHYL, N N R (description) 761; (Chilcott) 761
CELLS
  Alveolar Cell Tumor· See Lungs, tumors
  Chromaffin See Pheochromocytoma
  inclusion phenomenon in lupus erythematosus, [Berman] 263—ab
  ovarian hilus cells and endometrium cancer, [Goldstein] 200—C
  Plasma Cell Tumor. See Myeloma
CELLU-BRAND White Wheat Bread, 763
CENSUS See also Directory (cross reference)
  of Turkey for 1950, 1498
CEREAL PRODUCTS. See Rice
CEREBELLUM
  tumors, astrocytomas [Mabon] 711—ab
CEREBRAL Palsy· See Paralysis, cerebral
CEREBROSPINAL FLUID
  Hyperalbuminosis of· See Guillain-Barré Syndrome
  in multiple sclerosis, [Weise] 277—ab
CEREBROSPINAL SYPHILIS See Neurosyphilis
CEREBRUM See Brain
CERTIFICATION See also American Board
  certificates from other than medical practitioners, London, 63
CERVIX Uteri See Uterus
CESAREAN SECTION
  indications, Norway, 257
  preoperative treatment, 1139
CHAGAS Disease See Trypanosomiasis
CHEEK
  leukoplakia 974
  swelling of, and premenstrual tension, 1325
CHEESE
  allergy to, cause of painful shoulder, [Castex] 963—ab
  production, no way to neutralize effect of *penicillin on milk, 726*
CHEMICALS
  in bottle cleaner causes infants deaths, 1576
  in foods, 1010, 1267, 1381, 1488, 1572
  in foods, danger from Food Protection Advisory Committee, 849—E
  in the atmosphere, 809
  Laboratory. See American Medical Association
  Tests See Medicolegal Abstracts at end of letter M
  used in tanning leather and in shoe polish, hazard, 1535
  warfare, medical problems in, *[Wood] *606*
CHEMISTRY See also Biochemistry
  A M A Council on. See American Medical Association
  E Fourneau, French chemist, [Vignes] 20—C
CHEMOSURGERY
  treatment of melanoma, [Mohs] 1119—ab
CHEMOTHERAPY See also under names of specific drugs as Sulfonamides
  effect on intestinal flora, [Dearing] 1590—ab
  in ulcerative colitis, effects on fecal bacteria, [Marshall & others] *900
  injection into pulmonary cavities, [Ebers] 1216—ab
  of cancer, 1198
CHEN YU, cosmetic preparations *accepted by* A M A Committee, 1004
CHERRIES
  Diet-Delight Brand Royal Anne, 847
  Monarch Brand Dietetic Pack Fruits and Vegetables, 1092
CHEST See Thorax
CHICAGO
  Medical School appointments, 1384
  Surgical Society *Prize* See Prizes
  University of See University
  "walking blood bank," 550—E; [Ivy] 730—C, (comment by chairman of A M A on Blood Banks) [Larson] 760—C
CHICKENPOX
  treatment, penicillin, [Krug] 956—ab
CHICKEN SOUP
  Libby's Strained and Homogenized, 1092
CHIGGERS See Trombiodiosis
CHILDBIRTH See Labor, Medicolegal Abstracts at end of letter M
CHILDREN See also Infants; Maternity, Pediatrics, under names of specific diseases as Cancer; Liver inflammation
  "Accident Handbook" published by Children's *Hospital of Boston, 1007—E*
  accidents to, childhood s greatest physical threat, [Dietrich] *1175, 1183—E
  accidents to, meeting on child safety, Chicago, 192, (new committee named) 1015
  Adolescent. See Adolescence
  Boy Scouts See Boy Scouts
  Child Guidance Clinic Center, New York, 56
  Children's Service Center moves, Virginia, 1193
  Crippled· See Crippled
  emotional problems, [Rich; Jensen] 1034—ab
  Growth of See Growth
  health center in India, 1195
  Hospitals for See Hospitals
  Human Beginnings (film review), 1507
  juvenile delinquency, [Nicholson] *1538
  Mentally Defective See Mental Defectives
  Midcentury White House Conference, history of White House Conferences since 1909, 1096—E; 1380, 1467—E
  physical examination of minors, state laws on, (Bureau report) 862
  Precocious Puberty See Adolescence
  Preface to a Life (film review), 784
  Spastic See Paralysis, spastic
  Speech Defect· See Speech
  U S Children's Bureau created in 1912, 1096—E
  welfare, Puerto Rican needs for children, 1010
CHIROPRACTORS· See also Medicolegal Abstracts at end of letter M
  licensing, state laws on, (Bureau report) 863
  New Jersey, report on, (Bureau report) 653
CHLORAMPHENICOL (chloromycetin)
  dosage in typhoid, [Medina] 499—ab
  synergism and antagonism, [Bigger] 716—ab
  toxicity oral and pharyngeal complications, *[Williams]* 1510—ab
  [illegible] Brucellosis; Colitis, [illegible] vaccinatum; Endo-[illegible] Plague, Trachoma, Typhoid; Typhus
  treatment, compared with terramycin and aureomycin, [Werner] 792—ab
  treatment, inhaling aerosols in sinorespiratory infections, [Prigal & Molomut] *897
  treatment of infants with acute enteric syndrome, *[Nassi] 350—ab*
  treatment, oral, of ulcerative colitis, bacterial flora during, [Marshall & others] *902
  treatment plus aureomycin of whooping cough, [Barbera] 1131—ab
  treatment, recent trends, [Kirby] *234
CHLORIDES See also Sodium chloride
  changes after ACTH and cortisone, [Sprague & others] *1344
  in Blood See Blood
  in Urine See Urine
  loss, in surgical patients, parenteral potassium to prevent, [Lowe] 1406—ab
  water balance, determining water-chloride balance sheet, [Scribner & others] *1167
CHLOROETHYLAMINES See Nitrogen Mustard
CHLOROMYCETIN See Chloramphenicol
CHLOROQUINE (SN 7618)
  treatment, intravenous, in *malaria*, [Scott] *952—ab*
CHOKED DISK See Nerves, optic
CHOLECYSTITIS See *Gallbladder* inflammation
CHOLECYSTOPATHY See Gallbladder disease
CHOLELITHIASIS See Gallbladder, calculi
CHOLERA
  treatment, chemotherapy, [Collier] 1035—ab
CHOLESTEROL
  crystalline ester, and cortical renal tumors, [Leary] 1119—ab
  in Blood See Blood
  intake and vascular sclerosis, 469—E
  pericarditis, [Ada] 713—ab
  stone *in gallblader, (reply)* [Riese] 360
  tanning of skin, 975

CHOLINE
  treatment in coronary arteriosclerosis, [Morrison] 262—ab
  treatment, new action especially in hyperthyroidism, [Degli Esposti] 274—ab
CHOLINERGIC DRUGS, [Grimson] 1211—ab
CHORIONIC CARCINOMA
  hydatidiform mole and, [Novak] 416—ab
CHORIONIC GONADOTROPINS: See Gonadotropins
CHRISTIAN, PAUL, radio "doctor" receives award, 557
CHRISTIAN SCIENTISTS
  licensure, state laws on, (Bureau report) 861
CHRISTIAN-Weber Disease: See Panniculitis
CHRISTMAS TREE
  light bubbles; danger from drinking fluid, 1601
CHROMAFFIN Cell Tumor: See Pheochromocytoma
CHROMIUM
  not cause of sycosis barbae, 512
CHRONAXIA
  curare and neostigmine effect on, 1282
CHRONICALLY ILL: See Disease, chronic
CHRYSOTHERAPY: See Gold therapy
CIBA Award: See Prizes
CIGARETS: See Tobacco
CILIARY BODY: See Iridocyclitis
CINCHONA
  early history, Colombia, 1282
CINEMA: See Moving Pictures
CINNAMON
  contact dermatitis from, [Epstein] 792—ab
CIRCULATION: See Blood circulation
CIRCULATORY Disease: See Cardiovascular Disease
CIRRHOSIS: See Liver; Thyroid
CITATION, Military: See Korean War Heroes; World War II, Heroes
CITIZENS
  Health Planning Committee, hold meeting, W. Va., 940
  physicians as citizens; recent elections, 1007—E; 1009
  register for voting! 318—E
CITROVORUM FACTOR
  reverses toxicity of aminopterin and amethopterin, [Schoenbach & others] *1558
CIVILIAN DEFENSE
  administration proposed, 1266; 1187
  A.M.A. Council report, 619
  A.M.A. support of recent legislation, 395—E
  blood procurement from civilians; Chicago's "walking blood bank," 550—E; [Ivy] 780—C; (comment by chairman of A.M.A. Committee on Blood Banks) [Larson] 780—C
  hospital plans in, N. Y., 1014
  industrial medical aspects, 618
  planning, 472; 935
  regional conference on, New Jersey, 1491
  stockpile of medical supplies, 1100; 1192; 1266; 1380
  UNITED STATES CIVIL DEFENSE, booklet for sale, 398
CLAPP'S Baby Foods, 393; 1374
CLARIFICATION phenomenon; new method for checking penicillin drugs, 1019
CLARK, COLIN, economist looks at medicine, 858
CLASSIFICATION: See Races
CLEARTONE Hearing Aids, *103
CLEVELAND Clinical Session: See American Medical Session
CLIMACTERIC: See Menopause
CLIMATE: See also Seasons; Tropics
  tendency to hemorrhage, 597
CLIMATIC Bubo: See Lymphogranuloma, Venereal
CLINICAL
  Laboratories: See Laboratories
  Laboratory Technicians: See Technologists
  Pathology: See Pathology
  Session: See American Medical Association
CLINICS: See also Cancer; Epilepsy; Health; etc.
  groups and, 846—ab; 1089—ab
CLOTHING
  type to protect against heat from fire, [Buettner] *736
CLOTTING: See Blood coagulation
  Intravenous: See Phlebothrombosis; Thrombophlebitis
CLOVER, Spoiled Sweet: See Dicumarol
CLUBFOOT: See Foot
COAGULATION: See Blood coagulation
COAL Gas: See Carbon Monoxide
COBALT
  radioactive isotope, 447—ab
COCAINE
  hydrochloride to dilate pupils, 1536
COCARBOXYLASE
  glucose blood levels and phosphoric esters of thiamine, 1394

from virus pneu-

urgery in, [Melick]
714—ab
  pulmonary, surgical treatment, [Cotton] 1515—ab
COCKROACHES
  vectors of virus disease, 1185—E
CODE of Ethics: See Ethics, Medical
CODFISH
  Gorton's Strained, for Babies, 763
COFFEE: See also Caffeine
  liver cirrhosis caused by drinking excessive amounts of? 725
COITUS: See also Contraception; Frigidity; Impotence; Impregnation; Libido; Rape; Reproduction; Spermatozoa
  sympathectomy effect on ejaculation, [Retief] 960—ab
  vasectomy effect on, [Garrison & Gamble] *293; [O'Conor] 1502—C
COLCHICINE
  treatment of cancer, London, 1198
  treatment plus roentgen rays in leukemia, [Keibl] 276—ab
COLD: See also Freezing; Frostbite; Refrigeration
  Agglutinins: See Agglutinins
  angina in winter, 1323
  exposure to, and vitamin A requirement, [Ershoff] 793—ab
  trauma, [Bloomfield] *290
  Wave: See Hair, permanent wave
COLDS: See also Hay Fever
  bacteriologic environment in, [Prigal] 1585—C
  etiology; diagnosis; epidemiology; prevention; treatment, [Bloomfield] *287
  incidence, in submarines, [Kaisner] 233—ab
  lectures on, Italy, 701
  treatment, antihistamines, [Bloomfield] *291; 565
  treatment, antihistamines; failures, [Feller] 268—ab
  treatment, penicillin, indiscriminate use causes serious reaction, [Goldman] 1023—C
COLITIS
  amebic, aureomycin for, [Armstrong] 586—ab; [Gutch] 1030—ab
  ulcerative, [Lahey] 1518—ab
  ulcerative, chloramphenicol in, [Bercovitz] 1211—ab; 1590—ab
  ulcerative, normal intestinal bacteria in, [Seneca] 418—ab
  ulcerative, pancreatic lesions with, [Ball] 1305—ab
  ulcerative, surgical treatment, [Mori] 272—ab; [Strombeck] 275—ab; [Sullivan] 1518—ab
  ulcerative, treatment (sulfaguanidine, penicillin, chloramphenicol, aureomycin, streptomycin) effect on fecal bacteria, [Marshall & others] *900
COLLAPSE: See Shock
  Therapy: See Pneumothorax, Artificial; Tuberculosis of Lung, artificial pneumothorax in; Tuberculosis of Lung, surgical treatment
COLLEGE: See University
  Education: See Education, Medical, premedical
  Medical: See Schools, Medical
  of Physicians, Surgeons, etc: See American College; Royal College; list of Societies at end of letter S
  Students: See Students, Medical
COLOMBIA
  basic principles for a public health program, 1199
COLON: See also Cecum; Colitis; Colostomy
  cancer of sigmoid, 26 years survival, [Solomon & Kreps] *221
  megacolon, Hirschsprung's disease: cause and treatment, [Bill] 268—ab
  polyposis, [Acuff] 493—ab
  polyposis (familial), [Clark] 1125—ab
  polyposis (multiple), [Bartlett] 270—ab
  polyps of sigmoid in relation to cancer, [Ortmayer] 341—ab
COLON BACILLUS: See Escherichia coli
COLOR: See Skin pigmentation
COLOSTOMY
  stoma, abdominal wall flaps for grafting, [Pickrell] 423—ab
COLVIN Memorial Surgical Fund: See Foundations
COMA. See Unconsciousness
  Diabetic: See Diabetes Mellitus, coma
  Hepatic: See Liver
COMBAT: See Korean War: World War II
COMICS
  in fight against socialized medicine: Sad Case of Waiting-Room Willie, 46—E
COMMISSION: See also list of Societies and Other Organizations at end of letter S
  Indiana Commission on Chronic Illness, governor appointments to, 557
  on Chronic Illness, 466—E; 694
COMMISSIONS: See Armed Forces; Army, U. S.
COMMISSUROTOMY
  for mitral stenosis, [Glover & others] *1054
COMMITTEE: See also list of Societies and Other Organizations at end of letter S
  A.M.A.: See American Medical Association
  Conference Committee on Graduate Training in Surgery, 1468—E; 1503
  on chemicals in foods, 1267
COMMITTEE—Continued
  of 53, meeting voted by Board, 695—OS
  on Labor-Management Cooperation for Safety, 1008—E
  on Medical Sciences consultant: Dr. Joseph F. Sadusk, Jr., 473
  on Public Medical Education of Baltimore City Medical Society, comics in fight against state medicine, 46—E
  on skin regeneration, Texas, 1193
COMMODE
  energy expended by patients on, [Benton & others] *1443
COMMON Council for American Unity promotes national letter writing week, 932—E
COMMUNICABLE DISEASES: See also Epidemics, Infectious Disease
  report, U. S., 192
  state laws on, (Bureau report) 862
COMMUNISM
  fight against; let's keep America healthy, 1094—E
COMMUNITY
  rehabilitation center and the general practitioner, [Jones] *990
  what the community expects of the doctor, [Seltzer] *1573
COMPENSATION: See also Income
  for Injuries: See Workmen's Compensation
  medicine, American Academy of, New York, 1192
COMPLEMENT
  fixation test for herpes simplex, [Dudgeon] 1128—ab
COMPOUND E: See Cortisone
COMPULSORY Health Insurance: See Insurance, sickness
CONCEPTION: See Impregnation; Pregnancy; Sterility
  Control of: See Contraception
CONDUCT: See Behavior; Ethics, Medical
CONFERENCE: See also National Conference; under list of Societies at end of letter S
  Committee on Graduate Training in Surgery, 1468—E; 1503
  for consultants and command surgeons of U. S. Air Force, 769
  on Cancer Diagnostic Tests, 472
  on Pregnancy Wastage, 1579
  on Rheumatology, Italy, 256
  Pan American Conference on Leprosy (3rd), 192
  Postgraduate Conference in Obstetrics and Gynecology at Loyola U. televised, 54
CONFIDENTIAL Communications: See Privileged Communications
CONGELATIO: See Frostbite
CONGO
  Belgian Red Cross in, 1394
CONGRESS: See also International Congress; National Congress; list of Societies at end of letter S
  Annual, of A.M.A.: See American Medical Association
  medical congresses in Spain, 567
  of Industrial Organizations (C.I.O.): See Industrial Trade Unions
  on Gastroenterology (2nd), 198
  U. S.: See United States Congress
  U. S., legislation considered by: See Laws and Legislation, federal
CONGRESSIONAL Record: See Journals
CONJUNCTIVA
  cortisone injected into, in iritis, [Koff & others] *1259
CONJUNCTIVITIS
  chronic follicular, 726
  epidemic, 1324
  Granular: See Trachoma
  infectious acute, in newborn, penicillin prophylaxis, [Berwind] 348—ab
CONNECTICUT
  State Commission for Care of Chronically Ill, [Covalt] *1249
CONSTIPATION: See Cathartics
CONSTITUTION: See also Personality; Psychosomatic Medicine
  changes in chronic tuberculous meningitis, [Schonenberg] 1313—ab
  insulin shock dose, differences in various types, [Winkler] 1522—ab
  insulin tolerance tests in 3 constitutional types, [Winkler] 1522—ab
  classification: sympatheticotonics and parasympatheticotonics; adrenocorticotropics and anterior pituitaries, 1536
CONSULTANTS
  appointment to Veterans Administration, 1575
CONSULTATION
  hours (old and new) for patients, Sweden, 705
CONTACT Dermatitis: See Dermatitis venenata
CONTAGION: See Infection
CONTAGIOUS DISEASE: See Infectious Disease
CONTEBEN: See Amithiozone
CONTEST: See Prizes
CONTINUATION Courses: See Education, Medical, graduate
CONTRACEPTION
  chronic cystic mastitis and, 1602
  effects of vasectomy, [Garrison & Gamble] *293

CONTRACEPTION—Continued
  state laws on, (Bureau report) 867
  Trippe Diaphragm Introducer, 1093
  Veritas Kreme; Applicator; Plunger Applicator, N N R, 314
  when may contraceptives be discontinued in menopause, 976
CONTRACTURE: See also Cramps; Spasm
  dermatogenous, of upper extremities, [Fuchs] 430—ab
  Dupuytren's, 438
  Dupuytren's, treatment, France, 858
CONVALESCENCE: See also Rehabilitation
  care of children convalescing from poliomyelitis, [Bennett] *377
  early ambulation, [Riddell] 426—ab
  energy expended by patients on bedpan and commode, [Benton & others] *1443
  Rehabilitation: See Rehabilitation
CONVENTION, A M A: See American Medical Association
CONVULSIONS: See also Eclampsia; Epilepsy
  dissecting aneurysm of aorta with, [Moersch & Sayre] *1141
  ether (so-called), [Aigner] 966—ab
  generalized, 1139
  pertussis immunization cause of, [Grace] 1121—ab
  Therapeutic: See Electric shock treatment; Insulin shock
  treatment, carotid-jugular anastomosis, [McKhann] 1403—ab
COOLEY'S Anemia: See Anemia, erythroblastic familial
COONEY-Crosby Technic: See Ascites
COOPERATIVE Medical Advertising Bureau: See American Medical Association, State Journal Advertising Bureau
COPPER
  sulfate method for determining specific gravity of blood, 1223
COPPERSMITH, symptoms in, 597
COR Pulmonale: See Heart hypertrophy
  Triloculare Biatrium: See Heart anomalies
CORAMINE: See Nikethamide
CORN
  allergy role in reactions to dextrose, 1379—E
  allergy to excipients of pharmaceuticals, [Randolph] 1027—ab
CORNEA
  herpes simplex, aureomycin for, [Thygeson] 576—ab
  Inflammation: See Keratitis
  methylrosaniline effect on, 511
CORONARY
  Arteries See Arteries, coronary
  Arteriosclerosis: See Arteriosclerosis
  Thrombosis. See Thrombosis, coronary
CORONERS
  state laws on, (Bureau report) 652; 867
CORPSE: See Autopsies; Cadaver; Cremation; Undertakers
CORPUS LUTEUM
  Hormone. See Progesterone
CORTICOSTERONE See Desoxycorticosterone
CORTISONE (Compound E)
  action, made of, [Hellmeyer] 1594—ab
  course on use, (W Va) 325; (Jefferson Medical College) 771; (Wis) 1492
  physiological effects, [Sprague & others] *1341
  research, millions for, 696
  screening test, ephedrine in, [Abelson] 716—ab
  supply, [Hench & others] *1331
  supply for U S Army hospitals, 471
  symposium on, at Sixth International Congress of Pediatrics Geneva, 777
  symposium on, by A M A Section, [Hench & others] *1327, [Massell & Warren] *1335; [Sprague & others] *1341; [Howard & others] *1347; [Pearson & Eliel] *1349; [Shy & others] *1373
  toxicity, [Hench & others] *1328
  toxicity, Cushing's syndrome, [Pelner & Waldman] 413—C
  toxicity hypercholesteremia, [Adlersberg & others] *909
  toxicity: skin complications, [Behrman & Goodman] *218
  toxicity: tuberculosis in mice exacerbated, [Hart] 1408—ab
  toxicity: water retention, [Chapman & Kark], 65—C
  Treatment: See also Arthritis, Rheumatoid; Blood Vessels disease; Burns; Cancer; Eyes; Hodgkin's Disease; Iridocyclitis; Kidneys disease; Leukemia; Lupus erythematosus; Lymphoma, Muscles; Peptic Ulcer; Reiters Disease; Rheumatic Fever
  treatment, eosinophil count response to ACTH before, during and after, [Sprague & others] *1344
  treatment of malignant conditions, [Spies] 1036—ab
  treatment of rheumatoid arthritis with smaller (maintenance) doses, [Boland & Headley] *365
  treatment, subconjunctival injection in iritis, [Koff & others] *1259
CORYZA: See Colds
COSMETICS
  A M A Committee on, (report) 644
  Hair Dyes; Cold Waves, etc.; See Hair
  list of preparations accepted by A M A. Committee, 1004
COSTS: See Economics, Medical
COUGH: See Colds Sputum; Whooping Cough
COUMARIN: See Dicumarol
COUNCIL, A M A: See American Medical Association
COUNTY
  Health Dept.: See Health
  Society: See Societies, Medical; list of societies at end of letter S
COURSES, Continuation: See Education, Medical, graduate
COURT Decision; Trial: See Medical Jurisprudence
COWPOX: See Vaccinia
COWS
  treated with penicillin, production of buttermilk and cheese, 726
COW'S MILK: See Milk
COXIELLA
  burnetii recovered from dust, [DeLay] 1123
COXSACKIE DISEASE
  "new" disease, [Rasmussen] 719—ab
  poliomyelitis infection, 1265—E
  virus and Bornholm disease, [Findlay] 346—ab
  virus, cultivation, 931—E
  virus in paralytic poliomyelitis, [Melnick] 1307—ab
  virus, laboratory workers infected, [Shaw] 787—ab
  virus occurrence in southern Maryland community, [Huebner & others] *609
CRAFT, Undersea: See Submarines
CRAMPS: See also Spasm
  nocturnal, and vomiting of pregnancy, 1220
CRANIUM: See Brain; Temporal Bone
CREAM See Cheese
CREATININE
  relation to nonprotein nitrogen in azotemic states, [Gaberman & others] *1246
CREMATION
  committee on, report, London, 944
CRIMINALITY
  in Belgium, 1108
CRIPPLED: See also Handicapped; Poliomyelitis
  children, accidents, cause of crippling, [Dietrich] *1175; 1183—E
  children, Convalescent Hospital, Kentucky, 54
CROHN'S Syndrome: See Ileitis
CROPS
  effects of organic phosphorus insecticides on, [Lehman & others] *108
CROSBY-Cooney Technic: See Ascites
CROUPETTE Humidity and Oxygen Tent, *103
CRUZ (Oswaldo) Instituto, commemorate 50th year of founding, 568
CRYPTOCOCCOSIS, (torulosis)
  disseminated, [Parrillo] *747
  lung findings, [Ratcliffe] 1309—ab
  neoformans endophthalmitis cause of massive separation of retina, [Heath] *1148
  neoformans infections [Fisher] 490—ab
CRYPTORCHISM: See Testis, undescended
CRYSTAL Violet: See Methylrosaniline
CRYSTALLINE Lens: See Lens, Crystalline
CULTS: See Chiropractors; Christian Scientists; Naturopaths
CURARE: See also *d*-Tubocurarine
  chronaxia and neostigmine in man, Brazil, 1282
  evaluation of curarizing agents in man, [Unna & others] *448
  toxicity. pulmonary complications, Sao Paulo, Brazil, 779
CURRICULUM: See Education, Medical
CUSHING'S SYNDROME
  ACTH cause of, [Taylor & others] *1063
  ACTH or cortisone cause, [Pearson & Eliel] *1352
  cortisone cause of, [Pelner & Waldman] 413—C
  treatment, ACTH, [Soffer] 342—ab
CYSTEINE
  to protect organism against roentgen rays, [Forssberg] 961—ab
CYSTITIS: See Bladder inflammation
CYTOLOGY: See also Cells
  Smear. See Cancer, diagnosis
CYTOMYCOSIS, Reticulo-endothelial: See Histoplasmosis

D

DFP: See Di-Isopropyl Fluorophosphate
DABNEY'S Grip: See Pleurodynia, Epidemic
DAIRY Products: See Cheese; Milk
DAMAGES: See Malpractice
DAMON RUNYON Fellowships: See Fellowships
  Memorial Fund: See Foundations
DANA Medal: See Prizes
DARK Adaptation: See Eyes, accommodation
  Field: See Microscopy
DARLING'S Disease: See Histoplasmosis
DARROW'S SOLUTION, composition, [Hoffman] *1160
DAYTON, diabetes detection drive in, [Sharkey & others] *914
DEAD BODIES: See Cadavers; Cremation; Undertakers; Medicolegal Abstracts at end of letter M
  Examination: See Autopsies
DEAFNESS: See also Hearing, impaired
  congenital, 1047
  etiology: acoustic trauma, 359
  etiology: mumps, 512
  etiology: neomycin therapy, [Carr & Pfuetze] 65—C
  etiology of certain types of, with tinnitus, [Fowler] 1515—ab
  familial, heredity, 1533
  in infant, 1046
  Nerve: See Otosclerosis
  perceptive, in kernicterus, [Gerrard] 1310—ab
  rubella congenital inner ear deafness, [Hiller] 1128—ab
  Treatment: See Hearing Aids
"DEARHOLT Days," Wis., 855
  Medal. See Prizes
DEATH: See also Cadavers; Coroners; Murder; Undertakers; Wills
  Accidental: See Accidents, fatal
  Cause of: See also Accidents, fatal under names of specific diseases, conditions and substances
  cause of, in children, [Dietrich] *1175; 1183—E
  causes of, in diabetic physicians, [Bradley] *445
  Examination after: See Autopsies
  Cremation Committee, report, England, 944
  of Infants See Infants, mortality
  of Physicians: See Physicians; list of Deaths at end of letter D
  Rate: See Vital Statistics
  sudden, due to allergy tests, [Harris] 69—ab
  thymus, in newborn and nurslings, [Mink] 274—ab
  War Dead: See Korean War
DECAMETHONIUM bromide, evaluation, [Unna & others] *448
DECIDUOMA Malignum: See Chorionic Carcinoma
DEERFLY Fever: See Tularemia
DEFECATION. See Feces
DEFECTS: See Mental Defectives; Physical Defects
DEFENSE: See Civilian Defense; Medical Preparedness
DEFERMENT, Military: See Medical Preparedness
DEFICIENCY DISEASE: See Beriberi; Nutrition, deficiency, Rickets; Vitamins
DEFORMITIES: See also Crippled; Hip; Poliomyelitis
  prevention in rheumatic disease, [Kelly] 960—ab
DEGENERATION
  in diabetes mellitus, [Landabure] 350—ab
DEGLUTITION: See Swallowing
DEHYDRATION
  deficit of water and sodium chloride cause of, [Scribner & others] *1172
  mercurial diuretic, cause of, [Rechtschaffen & Gittler] *237
DELINQUENCY
  juvenile, [Nicholson] *1538
DELIVERY: See Labor
DE LORME table for treatment of poliomyelitis, [Mead] *458
DEMENTIA PRECOX
  etiology: family conditions as factors, in schizophrenia, 1326
  research, Masons finance, 1492
  treatment, antireticular cytotoxic serum, 1282
  treatment, emergency leukotomy, 944
  treatment, insulin shock, [Palmer] 337—ab
  treatment of schizophrenia of 18 years standing; radical lobotomy partially effective; estrogens suggested, 1536
  treatment of schizophrenia: prefrontal leu*kotomy indicated, 360*
DEMOCRACY: See also Elections
  in action, broadcast programs on, 1194
  let's keep America healthy: fight against com*munism, 1094*—E
DEMOCRATIC PARTY
  cry in the wilderness, latest appeal to support compulsory health program by J. D Dingell, 552—E, 553
  unauthorized use of World Wide pictures by; Korean War and doctor shortage, 930—E
DENTAL Caries: See Teeth caries
  Practice Acts: See Medicolegal Abstracts at end of letter M
DENTISTRY: See also Teeth
  practice of, Sweden, 945
DENVER Clinical Session: See American Medical Association
DEOXYCORTONE: See Desoxycortone
DEPRESSION. See Mental Depression
DERMAL See Skin
DERMATITIS: See also Eczema; Urticaria
  Atopic: See Neurodermatitis
  Contact: See Dermatitis venenata
  exfoliative, after undecylenic acid therapy for psoriasis, [Schiff] *620
  Industrial: See Industrial Dermatoses
  jewelry cause of, 725
  scaly patches on palms, 976
  seborrheic, vitamin B_{12} in, [Andrews] 1127—ab
  venenata, due to cinnamon, [Epstein] 792—ab

DERMATOLOGY: See also Skin; under names of specific skin diseases
  Academy of, ninth annual meeting, Chicago, 941
  American Board of: See American Board
DERMATOMYOSITIS
  lupus erythematosus and, [Madden] 1119—ab
DERMATOSIS: See Skin disease
  Industrial: See Industrial Dermatoses
DESENEX, N.N.R., (description) 761; (Wallace & Tiernan) 761
DESENSITIZATION: See Allergy
DESERT FEVER: See Coccidioidomycosis
DESOXYCORTICOSTERONE
  acetate and ascorbic acid in rheumatoid arthritis, [Graham] 1121—ab
  acetate intramuscularly and ascorbic acid intravenously in chronic polyarthritis, 1107
  acetate, relative effects of adrenal cortical extracts and [Green & others] *142
  treatment of arthropathies, [Buttaro] 502—ab
  vascular lesions produced with, [Ravault] 73—ab
DESOXYCORTONE
  action of licorice extract, [Molhuysen] 1408—ab
  treatment plus ascorbic acid in rheumatoid arthritis, [Bywaters] 271—ab
DETERGENTS: See also Wetting Agents
  antibiotic, treatment of osteomyelitis, [Grace] 1591—ab
DEVIL'S Grip: See Pleurodynia, Epidemic
DEXTROAMPHETAMINE (dexedrine)
  sulphate treatment of obesity, [Edwards] 1593—ab
  treatment of narcolepsy, 358
DEXTROCARDIA: See Heart
DEXTROSE
  reactions to; role of allergy to corn, 1379—E
  tolerance test in exhaustion in young business executive, [Portis & others] *1162
  tolerance test on young man, 888
  tolerance test, result of in diabetes mellitus, 974
DIABETES MELLITUS: See also Medicolegal Abstracts at end of letter M
  acidosis, potassium for, [Nadler] 419—ab
  acidosis, potassium losses in, [Hoffman] *1159
  blood ketone levels during stress, [Hinkle] 580—ab
  coma in, [Story & Root] *86
  complications: arteriosclerotic peripheral vascular disease, sympathectomy in, [DeBakey & others] *1227
  complications: gangrene, midleg amputations for, [Silbert & Haimovici] *154
  complications: keratitis with heart disease, ACTH for, [Mazar & Bogdasarian] *1369
  complications: liver insufficiency, [Frankel] 1205—ab
  complications: malignant hypertension, bilateral adrenalectomy, [Green & others] *439
  complications: myasthenia gravis, [Perry] 707—C
  complications: neuritis, (correction) 477
  complications: pregnancy, [Pahlsson] 429—ab; [Zillaicus] 1521—ab
  complications: rheumatoid arthritis, gold treatment, 1602
  complications: sliding hernia of ovary; ovarian ectopia plus absence of vagina and single kidney, [Beck] *462
  complications: toxic goiter, treated with radioactive iodine, [Beidleman] *925
  complications: visual, [Knauer] 1122—ab
  degenerative lesions in, [Landabure] 350—ab
  detection drive in Dayton, Ohio, [Sharkey & others] *914
  Detection Drive, Nov. 12-18, discovering unsuspected diabetes, 468—E; 700
  diagnosis, dextrose tolerance test on young man, 888
  diagnosis, results of dextrose tolerance test: mild diabetes, 974
  diathermy contraindicated, 211
  etiology, cerebral hemorrhage, 1048
  etiology; reflections on causation, [Wilder] *1234
  experimental, glucose blood levels and phosphoric esters of thiamine, 1394
  in infant (5 month old) [Staffieri] 1131—ab
  in physicians, [Bradley] *441
  insulin in diabetic coma, [Story & Root] *86
  insulin in, requirement vs. radioactive iodine [illegible]
  [illegible] jaundice hepa- [illegible]
  insulin in, time action of globin insulin vs. protamine insulin modifications, [Colwell] 871—ab
  marriage between patients, [Lincoln] 582—ab
  meta diabetes, [Wilder] *1237
  New York Diabetes Association, 1273
  personality and, research on by National Institute of Mental Health, 1190
  treatment, diabetic sugar free when taking alcohol, 1325
  treatment, fasting, 285
DIABETES MELLITUS—Continued
  treatment, Sacramento Brand Dietetic Foods, 519
  victory medal for patients, London, 1280
  West Virginia Diabetes Association organized, 401
DIACETYLDIOXYPHENYLISATIN
  as cathartic, 1420
DIAGNOSIS: See also under names of specific diseases
  Case Finding: See Case Finding (cross reference)
  centers, state laws on, (Bureau report) 867
  multiphasic screening, Council report, 648; 1470
DIA-MER-SULFONAMIDES, N.N.R., (Funk; Miller) 1165
DIAMETHYL-TUBOCURARINE IODIDE
  evaluation, [Unna & others] *448
DIAMINODIPHENYLSULFONE
  treatment of leprosy, [Johansen & Erickson] *989
DIAMINOPTERIDINES
  treatment of cholera, 1035—ab
DIAPARENE chloride, N.N.R., (description) 518; (Homemakers) 548
DIAPHRAGM
  Hernia: See Hernia, diaphragmatic
  Paralysis (Induced): See Nerves, phrenic
DIAPHRAGMATIC SPASM, Epidemic: See Pleurodynia, Epidemic
DIARRHEA: See also Dysentery
  epidemic, of newborn, [Vignec] 336—ab
  in infants, water and electrolyte losses in, [Hoffman] *1160
  treatment, aureomycin in infants, [Magnusson] 499—ab
  treatment, calcium indicated? 1325
DIASONE
  treatment of leprosy, [Sloan] 341—ab
DIATHERMY
  apparatus; American Dynatherm, XM-400, 315
  long wave, use in arthritis and other chronic disabling diseases, 358
  treatment contraindicated in diabetes? 211
  treatment for abscessed teeth, 1046
DIBENAMINE
  test in pheochromocytoma, [Koffler] 1028—ab
  treatment of hypertension, [Wunsch] 1511—ab
  treatment of simple glaucoma, [Bloomfield] 417—ab
DICOUMARIN: See Dicumarol
DICUMAROL
  dosage, 79
  hemorrhage caused by, 1466—E
  treatment (continuous) of thromboembolism with auricular fibrillation, [Askey & Cherry] *97
  treatment of acute coronary insufficiency, [Nichol] 583—ab
  treatment of heart diseases, [Bruins Slot] 74—ab
  treatment of phlebitis, [Olivier] 964—ab
  treatment of thromboembolic disease, [Pons] 273—ab
DIENSTROL
  treatment of postmenopausal toxic diffuse goiter, [Cachera] 1523—ab
DIET: See also Food; Nutrition
  blood cholesterol levels and, 1006—E
  Calories in: See Calories
  Deficiency: See Nutrition, deficiency
  Diabetic: See Diabets Mellitus, treatment
  Diet-Delight Brand Royal Anne Cherries, 847
  Dietetic Pack Fruits and Vegetables (Monarch), 1092
  gallstones and, 512
  in Pregnancy: See Pregnancy
  Infant's: See Infants, feeding
  of Norwegian merchant marine, 257
  Protein in: See Protein
  renal colic and, 726
  Salt-Free: See Salt
  therapeutic, for fatigued executive, [Portis & others] *1166
  therapeutic in jaundice, [Steigmann] *1076
  Vitamins in: See Vitamins
DIETHYLSTILBESTROL
  inhalation, 79
  treatment of pregnancy complications, 1418
DIGESTION: See Indigestion
DIGITALIS
  dosage in cardiovascular therapy, [Cattell] *889
DIGITOXIN
  N.N.R., *(Physicians' Drug and Supply) 314;* (Blue Line), 385
DIHYDROERGOCORNINE
  to differentiate functional and organic heart disease, [Pordy] 343—ab
DIHYDROSTREPTOMYCIN
  N.N.R., (Premo) 1465
  treatment of brucellosis; simultaneously with aureomycin, [Herrell & Barber] *519
  treatment of influenza, 512
  treatment of leprosy, [Johansen & Erickson] *989
  treatment of plague, [Meyer] *984
  treatment of subacute bacterial endocarditis, [Friedberg] *531
DIHYDROXYPHENYLISATIN
  as cathartic, 1420
DIIODOFLUORESCEIN
  radioactive, to diagnose and localize central nervous system tumors, [Davis & others] *1421
DI-ISOPROPYL FLUOROPHOSPHATE (DFP)
  treatment of abdominal distention, urinary retention and glaucoma, [Grob] 607—ab
DIMERCAPROL: See BAL
DIMERCAPTOPROPANOL: See BAL
DIMENHYDRINATE (dramamine)
  N.N.R. (Pasadena Research) 625; (Searle) 625
  treatment of postanesthesia nausea and vomiting, [Rudolph] 1283—C
DINGELL, JOHN D., misuse of *Congressional Record* for propaganda for compulsory health insurance, 532—E; 767
DIODRAST, N.N.R., (Winthrop-Stearns) 927
DIOLOXOL, N.N.R., (Carnrick) 314
DIPARCOL
  treatment of paralysis agitans, [Winther] 966—ab
  treatment of parkinsonism, 1224
DIPENICILLIN
  treatment of acute otitis media, [Nielsen] 1316—ab
DIPHENHYDRAMINE HYDROCHLORIDE (Benadryl)
  addiction after long continuous use, 1420
  *treatment of Parkinson's disease, [Effron & Denker] *6*
DIPHTHERIA
  immunization, nephritis after, [Porge] 275—ab
  immunization of contacts, 1417
  immunization, poliomyelitis after, 240—E; [Leake] 259—C; [Hill; MacCallum] 585—ab
  Schick test (positive) in adults, 510; (correction) 856
  toxoid and tetanus toxoids combined with pertussis vaccine, N.N.R., (Cutter) 239
  toxoids precipitated with aluminum phosphate, [McComb] 1516—ab
DIPHYLLOBOTHRIUM Latum: See Tapeworm
DIRECTORY: See American Medical Directory; Cancer clinic; Health agencies
DIRT: See Dust; Soil
DISABILITY: See also Accidents; Blindness; Crippled; Disease, chronic; Handicapped; Physical Defects; Workmen's Compensation
  classification, [Covalt] *1253
  Industrial: See Industrial Accidents
  Rehabilitation after: See Rehabilitation
DISASTERS
  relief, Florida, 853
DISEASE: See also Death; Health; Pathology; under names of specific diseases
  Carriers: See also Typhoid
  carriers and bacteriologic environment, [Prigal] 1585—C
  carriers, cockroach vectors of virus disease, 1185—E
  cat scratch, [Debré] 718—ab
  chronic, activities of state medical societies in, 1262—E
  chronic, A.M.A. Committee on, (report) 694; 1486
  chronic, Commission on Chronic Illness, 466—E; 694; 1486
  chronic, county to survey the chronically ill, N. J., 190
  chronic, home care for prolonged illness, [Shindell] 70—ab
  chronic, Indiana commission on chronic illness, 557
  chronic, plans for care of chronically ill, Minn., 1577
  chronic, program, California, 1191
  chronic, rehabilitation of chronically ill, 1 year report, Conn. [Covalt] *1249
  chronic, research institute, NY, 321
  Convalescence from: See Convalescence
  costs of hospitalized acute illness, [Wiprud & Altman] *835; (correction) 1195
  Diagnosis of: See Diagnosis
  Epidemics: See Epidemics
  Hazard: See Industrial Diseases
  in Great Men: See Great Men
  Industrial: See Industrial Diseases
  Mental: See Mental Disorders
  "new," [Rasmussen] 719—ab
  of Old Age: See Old Age
  Physical-Mental Relationship: See Psychosomatic Medicine
  Prevention: See Preventive Medicine
  Sickness Insurance: See Insurance, sickness
  Spread of: See Epidemics
  Standard Nomenclature of, 1950 revision, 635
  state laws on, (Bureau report) 863; 865
  Treatment of: See Hospitals; Therapeutics
  Tropical: See Tropical Disease
DISINFECTION: See Sterilization, Bacterial
  of Air: See Air
DISPENSARIES: See Clinics
DISULFYN, N.N.R. (description) 761; (Rorer) 761
DIURETICS
  mercurial, acute dehydration after, [Rechtschaffen & Gittler] *237

DIURETICS—Continued
  mercurial, in ambulatory patients, [Stroud] 1406—ab
  mercurial, intravenously, effect on return circulation, [Kartun] 426—ab
  mercurial, oral use, [Barrow] 873—ab
DIVERTICULA: See Duodenum; Esophagus; Intestines, Pharynx
DIVORCE
  juvenile delinquency and, [Nicholson] *1539
DIZZINESS See Vertigo
DOCTOR Draft Law See Medical Preparedness
DOCTORS. See Physicians
DODEX, N N R (Organon) 625
DOGS See also Rabies
  antivivisectionists move again, 689—E
DOMAGK, G, introduced two new sulfonamide compounds, Italy, 1019
DONATIONS See Fellowships; Foundations; Library; Prizes, Research grants; Scholarships
DONORS See Blood Transfusion; Impregnation, artificial
DONOVAN Bodies See Granuloma inguinale
DORANTAMIN maleate, N N R, (Buffington; Smith-Dorsey), 928
DOROLLE, PIERRE, new WHO deputy director-general, 251
DOSAGE See also under names of specific drugs
  persistence of drug action in relation to in cardiovascular disease, [Cattell] *889
DRACUNCULOSIS
  in immigrants from Yemen, Israel, 1281
DRAFT See Medical Preparedness
DRAMAMINE See Dimenhydrinate
DRESS See Clothing
DRESSINGS. See also Casts
  in extensive burns, [Denman] 206—ab
DRINKER-Nielsen Schafer Method. See Schafer
DRINKING See Alcoholism
DRIVERS, Driving See Automobiles
DROPSY See Ascites, Edema
DRUGGISTS. See Pharmacists
DRUGLESS HEALERS: See Cults (cross reference); Medicolegal Abstracts at end of letter M
DRUGS· See also Medical Supplies; Pharmaceuticals; Pharmacology, and under names of specific drugs
  addiction, [Anslinger] 333—C
  addiction to analgesics and barbiturates, [Isbell] 1121—ab
  addiction, withdrawal symptoms; use of methadone, 1601
  administration by inhalation, *32
  allergy to, ACTH in, [Howard & others] *1348
  Anesthetic: See Anesthesia
  Argentine physicians prosecuted for prescribing products not on market, 916
  Army on-the-spot test of, in Korea, 1572
  effect of publicity on use of, [Boles] *362
  effect on reproduction, [Tompkins] 261—C
  evaluation for acceptance, (Council Report) 641
  free medicine crisis in New Zealand, Australia, 706, 858
  free medicine in England under National Health Service, [Judson] 1586—C
  persistence of action in relation to dosage in cardiovascular disease, [Cattell] *889
  state laws on, (Bureau report) 862
  Therapeutic Use: See Chemotherapy; under names of specific diseases
  U S Food and Drug Administration: See Food
DRUNKENNESS: See Alcoholism; Medicolegal Abstracts at end of letter M
DUCTLESS GLANDS. See Endocrine Glands
DUCTUS ARTERIOSUS
  patent, [Karnell] 1215—ab
  patent, and pregnancy, 286
  patent, pulmonary and systematic arterial pressure in [Taylor] 580—ab
  patent, surgical therapy [Humphreys] 1030—ab
  patent, surgical treatment, [Lian] 350—ab
DUKE-ELDER, STEWART, presidential address, 330
DUODENUM
  diverticula, 197
  diverticulum and diaphragmatic hernia in woman aged 64, non-surgical treatment, 512
  Hemorrhage: See Peptic Ulcer
  Surgery. See also Peptic Ulcer surgical treatment
  surgery, esophagoduodenal anastomosis, [Palumbo] 1306—ab
  Ulcer See Peptic Ulcer
DUO-SULFANYL with sodium citrate, syrup, N N R, (Funk) 1465
DUOZINE, N N R (description) 761, (Abbott) 761
DUPUYTREN'S Contracture: See Contracture
DUST
  Inhalation of: See Pneumonoconiosis
  Coxiella burnetti, recovered from, [DeLay] 1123—2b
DUSTING POWDER
  Powder Bio-Sorb, N N R, (Ethicon) 385
DYER, ROLLA E, retires, 248
DYES. See also Hair dyes, Methylrosaniline
  radio dye, to localize central nervous system tumors, [Davis & others] *1425
  used in tanning leather and in shoe polish, 1535
DYSENTERY: See also Diarrhea
  Amebic: See Colitis, amebic
  registry, epidemiologists in hospitals, [Felsen] 65—C
DYSKINESIA: See Biliary Tract; Gallbladder
DYSPEPSIA: See Indigestion
DYSPHAGIA: See Swallowing
DYSPNEA See Asthma
DYSTROPHY
  Muscular· See also Myasthenia Gravis
  Muscular Dystrophy Research Foundation, Texas, 192
  muscular progressive, insulin therapy, [Mayerhofer] 1037—ab
  myotonica, cardiovascular observations in, [DeWind & Jones] *299
  myotonica, cortisone for, [Shy & others] *1354
  reflex sympathetic, of upper extremity (hand-shoulder syndrome), [Baylos & others] *537

DEATHS

A

Abernethy, John Uriah, 478
Achtentuch, Herman Hersch, 195
Ackley, Anna C, 195
Adams, Bentley Childs, 702
Adler Max, 1495
Alderson, Starling Peters, 195
Alexander, Julius S, 702
Alferes, John De Fraga 702
Alguire, Annie Bell McCallum, 1389
Allen, Clay, 562
Allen, Elijah Henry, 1196
Anderson, Aldor Gustaf, 1017
Anderson, Earl Marion, 478
Anderson, Laurie W Chester G, 562
Anderson, Mary Evans, 328
Anderson, Warren Edward, 562
Andres, Francis Anthony, 1389
Aptaker, Albert J, 1389
Armitage, John Edward, 478
Arnold, Francis Joseph, 328
Arrington, James Eland, 60
Artin, Arsen Sissakian, 195
Atha, Augustus Albert, 702

B

Babkin, Boris Petrovich, 856
Baillie, William Finley, 60
Baird, Frank Bennett, 1495
Baker, Alva Carson, 702
Baker, Archie Maurice, 1196
Baker, Ernest Laverne, 254
Baker, Frank Macklin, 1196
Baker, John Elmer, 478
Ballard, John William, 943
Balliet, Tilghman M, 1196
Bandy, William Gaither, 563
Barber, John Phineas, 1495
Barnhart, Thomas Charles, 328
Barr, William Carlisle Jr, 478
Barrett, Alfred Eugene, 563
Barsby, John Edward, 702
Baskerville, Charles M, 478
Bassett, Frank Houston, 407
Bate, James Robert, 1495
Baxter, Thomas Dugan, 702
Bazett, Henry Cuthbert, 195
Beach, James Daniel, 195
Beasley, John Johnson, 60
Beason, John William, 702
Beattie, William Alfred, 943
Becht, Frank Christian, 478
Bechtol, Nancy Martin, 702
Beckford, Henry Shedd, 1495
Beckmann, J William, 702
Belknap, Virgil *Clarence, 1196*
Bell, Felix Ortan, 60
Benson, Gideon H, 1196
Benson, Otis Otto Sr, 1389
Benton, James Hamilton, 1017
Bernhardt, Harry Bernard, 407
Berry, Jerome Francis, 1196
Berryhill, William A, 407
Bertner, Ernst William, 60
Bertram, Charles W., 478
Biach, Robert Wolf, 478
Bianchini, Vincent Anthony, 1495
Bienkowski, Joseph George, 702
Biggins, Patrick Edward, 702
Birkenhauer, John, 702
Bluhm, Kilian Kalonymos, 1495
Bodow, Johannes Charles, 328
Boehmer, Miriam Jean, 478
Boettner, Roland Buell, 328
Boswell, James Henry, 328
Bosworth, Boardman Marsh, 1388
Bottorff, Melvin Kinch, 1276
Boughton, Guy Cluxton, 479
Bowker, Alphonso Varion, 1495
Bowker, John Wesley, 479
Bowser, Willard Parker, 1276
Brabec, Frank Joseph, 479
Brady, Joseph Edward, 702
Bramble, Halsey Sandford, 254
Brandt, Emelia Hanigsen, 702
Brazelton, Clara May Holmes, 328
Brazelton, Holmes (see Brazelton, Clara May Holmes)
Bready, William Ramsey, 1017
Brewer, Gilbert Roscoe, 328
Brickel, Arthur Casimir John, 1017
Bridges, Judge J, 328
Bridges, Moscow Edward, 479
Brisbine, Royal Ellis, 1389
Broadnax, Mary Ethel, 329
Broder, Julius, 702
Brooks, Henry Wells, 60
Brown, Edward W, 329
Brown, Edwin Martin, 1389
Brown, George W, 1495
Brown, Henry D, 479
Brown, Percy, 1388
Brown, Thomas Richardson, 1017
Brownson, Jay Joseph, 479
Bruere, Gustave E, 702
Bruning, Charles, 1017
Brunn, Harold, 1388
Bryan, Alanson Leroy, 1276
Bryan, Henry Bohlen, 60
Buchanan, John Roosevelt, 1389
Buck, Wilmarth S, 702
Buckmaster, Harry Gatzmer, 702
Budau, John Harry Diederichs, 1389
Burgner, Byron R., 702
Burrows, Elliott Cyril, 479
Burt, Kenneth Louis, 329
Burt, Lawrence William, 1389
Burton, Cosper, 775
Butler, James Harvey, 195
Butt, William Alvin, 407
Button, Aaron Chapman, 702

C

Cabell, Abram L, 1495
Cacciarelli, Robert Anthony, 195
Cahoon, Roger, 479
Caldwell, Charles Swan, 775
Camfield, Bradford Allen, 857
Campbell, Harold Allen, 479
Campbell, Lorne Alexander, 1017
Campbell, William H, 702
Cannon, Clair R, 1495
Carolus, Walter I, 1196
Carr, Alexander Moncrieff, 1494
Carr, Jesse Wasson, 857
Carrell, John B, 1276
Carter, Albert Arthur, 60
Carter, Albert Howard, 1276
Carter, Frank Henry, 60
Carter, George Clayburn, 1495
Carter, William Wesley, 1494
Caruthers, Veolo Oglesby, 60
Cassidy, James Joseph, 1017
Casto, Holly Lee, 479
Caveny, Kasper Patrick, 60
Champlin, Paul Morrow, 1495
Chapman, George Little, 1276
Charron, Joseph Rosario, 254
Charvat, Frank Peter, 1017
Cheek, Rufus Chatham, 943
Chesley, Faris Franklin, 1017
Choate, Cora Williams, 702
Christensen, Bryant Elliott, 1495
Ciolli, Dominic Trinity, 1389
Clark, Burton, 1017
Clark, John Vincent, 1495
Clendenen, Charles M, 1389
Coe, Walter Benton, 1018
Coffey, Charles James, 1276
Cofield, Robert Barker, 254
Cogan, Henry, 195
Cogswell, John Wilkinson, 1389
Collard, Pettibone Brusus, 1018
Coller, Granville J, 1495
Collins, Albert Welker, 702
Collins, Frank B, 407
Compton, Arthur N, 60
Comstock, George Spaulding, 60
Conger, Elizabeth S, 195
Conn, Emmett Higbee, 60
Connamacher, Harold Solomon, 60
Connell, Arthur Irving, 254
Connole, Joseph Vincent, 1495
Conrad, Joseph Lewis, 857
Cook, Arthur Ellsworth, 1495
Cook, Charles Henry, 702
Corbusier, Harold Dunbar, 478
Cornelius, Albert Franklin, 60
Corry, Albert C, 702
Cottis, George W, 1388
Cottle, Louis Albert, 60
Coughanour, Albert Edward, 479
Cox, Thomas Edward, 1276
Craft, Harold Albert, 1276
Craig, Samuel Halleck, 1495
Crooks, Samuel Andrew, 943
Cross, Louis Kent, 60
Crossland, John R A, 1389
Currer, Paul McAllister, 60
Curtis, Charles Thayer, 254
Cush, Thomas James, 1389

D

Daley, Thomas V, 703
Dalton, Richard Andrew Jr, 1106
Damron, Harold Bryan, 254
Daniels, Melvin Robert Micheal, 1276
Darnall, Moses Hubbard, 1276
Davidow, Samuel H, 1495
Davidson, Emma J. Woodrow, 329
Davis, Albert Wellington, 1389
Davis, Elmer E, 195
Davis, Irwin Grant, 1276
Dawson, Lionel Montrose, 407
Day, Clark W, 1277
Deane, Allen Woodard, 254
Deans, Arthur Wood, 61
De Coste, Stephen Hubert, 254
Deemar, William Rogers, 407
De Korven, Victoria K, 1277
de la Pila Iglesias, Manuel, 1389
Denis, George Melvin, 1018
Dennison, Ira Warren, 703
Devlin, Peter Clarke, 407
Dew, Cassius Guy, 329
Dexter, Harriet Elma Tracy, 775
Dickey, Edward W., 195
Dickson, Robert Watson, 703
Diedling, Rudolph Francis, 1196
Dike, Charles Eugene, 329
Dinardo, Quentin Edmond, 1018
Disque, Andrew A, 1495
Dixon, Charles Leonard, *1277*
Doan, Edgar, 943
Dobson, James Furman, 1495
Dodd, John Morris Sr., 328
Dodge, Charles Harwood, 1389
Donaldson, Arthur Van Eman, 479
Doran, William Guy, 1494
Dorne, Maurice, 1277
Dougherty, J. Milburn Sr, 1495
Doughty, Roger Gamble, 1494
Douglass, Frederick Melvin, 195
Douglass, Stephen Augustus, 195
Downing, David Bernard, 703
Draper, Alexis Lumb, 329

Deaths—Continued
Drennan, Fred Miller, 703
Dryfuss, Barney Joachim, 1389
Ducote, Remy G., 407
Dudley, Homer Daniel, 478
Dumas, Alexander George, 1276
Duncan, Oscar Allen, 1389
Dunham, Adeline Frances, 1495
Dunkley, David A, 1389
Dunlap, Emmett Blaine, 1389
Durgin, Delmer Dennis, 479
Du Vall, Claude Emerson, 703
Dvorak, Ella Helen Valenta, 479
Dye, William Joseph Paul, 1388
Dyer, Frank Merritt, 1495

E

Easley, Charles A., 329
Eastland, Herbert Claire, 1018
Eaton, Chelsea, 1495
Eaves, James, 61
Edwards, William Leslie, 479
Ehresmann, Joseph John, 1495
Eisele, Charles Edward, 703
Eisenberg, David, 1277
Elkins, William Harry, 1580
Elliot, George Douglas, 195
Elliott, Frances P., 329
Ellis, Ivan George, 703
Enright, Charles Thomas, 479
Erpelding, John Kenneth, 1277
Esser, Oscar John, 329
Estes, Mordecai James Elliott, 479
Eudy, William Thomas, 1106
Eurit, Floyd Burner, 703
Evans, Evan Albert, 1389
Evans, John Corliss, 1495
Evans, Thomas Erryl, 703
Eve, John Edward, 195
Ewald, Paul Peter, 703
Ewalt, George Latrobe, 195
Ewing, John Sharp, 1196

F

Farrell, Robert Lawrence, 1495
Faust, Hugh Harvard, 703
Felberbaum, David, 1389
Fellows, James Hugh, 479
Fife, Samuel John Sutton, 196
Findlay, Ephraim Kirkpatrick, 775
Fischel, Walter, 196
Fitch, Josiah Whitaker, 1389
Fitch, Stewart Jackson, 1389
Flannery, Charles Francis, 703
Flau, Norman Carl, 407
Fledderjohann, Henry E., 1389
Fletcher, John Richard Burgoyne, 775
Fletcher, Robert Swan, 913
Flickinger, George Harvey, 61
Flinn, George Washington, 196
Flothow, Max William, 479
Fogel, David, 703
Ford, H. S., 479
Ford, James Arthur, 1277
Formy-Duval, Thurston, 329
Fortier, Clarence Albert, 703
Fosler, David Wayne, 196
Foster, Ruth, 1277
Fox, George W., 329
Foxworth, Thomas Daniel, 61
Frace, Guy Henry, 61
Francis, Harry Herbert, 254
Frank, Arthur, 1580
Fraser, Stuart Evans, 1390
Frater, Kenneth, 942
Free, Samuel Pratt, 196
Freedman, Charles, 943
Freeman, Edward Rutledge, 254
Freinkel, Jacob, 196
French, Oscar Witters, 1277
Fretz, John Edgar, 703
Fretz, John Lewis, 1277
Friddell, Luther L., 254
Friedlandt, Martin Menase, 479
Friedlandt, Menase (see Friedlandt, Martin Menase)
Fulkerson, Perry, 479

G

Gabel, William Jacob, 1390
Gabler, George Lewis, 703
Gaddy, Howell R., 479
Gaines, Frank McFarland, 1390
Galligan, Edward Joseph, 1277
Gambill, Ira Samuel, 479
Garard, William Jay, 479
Garberson, John Howard, 407
Garland, Harrie Sanborn, 1277
Garman, Russell Arthur, 1390
Gauntlett, James W., 407
Gay, George, 703
Gebhart, Oliver Crockett, 329
Gebhart, Oliver C. (*see Gebhart*, Oliver Crockett)
Gee, Willis Wyant, 775
Geeseka, Otto A., 943
Geist, Otto Bernhardt, 407
George, William Aaron, 1018
Gershenson, Edward Harry, 1390
Getchell, Albert Colby, 1388
Getman, Volkert Lincoln, 407
Gettinger, Andrew Joseph, 703
Ghormley, Robert Edward, 703
Gilkey, John A., 943
Gill, James Ward, 196
Gillham, Anna Merrill, 408
Girdwood, John, 1277
Glass, John B., 408
Goetchius, Harry Dubois, 479
Golding, Joseph Edward, 328
Goldsmith, Leon Albert, 1390
Gollobith, Edward Frank, 857
Good, George Ross, 479
Goodrich, Edson Everett, 1106
Gordon, Leon Stuart, 195
Grace, James Joseph, 1390
Graefe, Henry, 857
Graham, Archibald Fowler, 857
Graham, Aristophane, 408
Graham-Little, Ernest, 942
Gratia, André, 1394
Graves, Robert John, 195
Gray, Paris Leonard, 1018
Grayson, William Friar, 1277
Greenawalt, Elmer Paul, 479
Greene, James Sonnett, 702
Griess, Walter R., 479
Griffith, Guy Everett, 1390
Griffiths, Harry Chapman, 329
Griggs, John Bradford, 196
Grigsby, Clement E., 254
Gross, Harry Sim, 196
Grover, Joseph Isaac, 1390
Guggenheim, Lewis C., 254
Guntzer, Germaine Agatha, 1106

H

Hagerty, Harry John, 196
Hall, Myron Foster, 1580
Halliday, Charles H., 1196
Hallock, David Horace, 479
Hamilton, Sylvester Sutton, 703
Hancock, Robert Wesley, 254
Hannon, Daniel Francis, 479
Hansen, Joseph LaReno, 479
Hapeman, Harry, 1390
Harding, Thomas Ernest White, 408
Hardy, Charles Franklin, 254
Harper, James Clarence, 329
Harris, Sydney Louis, 943
Harrison, William H., 1390
Harry, John J., 1018
Hart, Frank Edward, 329
Hart, Vernon Lewis, 60
Hartman, Eslie Helen, 61
Hartzell, Harry Wallace, 1277
Hatfield, Ralph Eugene, 479
Hazlett, Almon Cyrus, 1390
Head, Jones Wesley, 408
Heffner, William James, 703
Helm, Lyman David, 1196
Helzer, Lewis Wade, 329
Hemmings, Lincoln Smith, 1277
Henson, Lafayette Leonard, 1018
Herbert, George, 703
Hershimer, Newton W., 1277
Hertz, Saul, 479
Hesson, Henry Clay, 408
Hill, Armina Sears, 563
Hines, Herman Henry, 61
Hinkle, Joseph D., 329
Hinkley, Henry Lu Sern, 563
Hirsch, Jerome Byron, 1277
Hogan, Stephen Clement, 1390
Holke, Theophil J., 775
Hoon, Merle Russell, 702
Hoover, Charles Henry, 329
Hoover, George William, 329
Horn, John Wesley Jr., 1277
Hosey, Napoleon Risher, 329
Houser, Lynwood Gaskin, 329
Howard, Ralph Bowen, 196
Howard, William Arthur, 61
Howe-Turton, Effie Ezzette, 329
Hull, Chester E., 1277
Hull, John Scudder, 61
Hummell, Harry Charles, 61
Hunt, Harry Elwyn, 1277
Hunter, Melville Wallace, 479
Hunter, Norman McLeod, 1580
Hurst, William Neel, 703
Hutcheson, Edward B., 329
Hutchinson, Rollo Wilson, 1580
Hutton, Thomas James, 1018

I

Ingelfinger, Joseph, 329
Irving, Francis Raymond, 775
Iseman, Everette, 1018
Ives, Nathaniel Holmes, 1277
Iwiansky, Alfred Michel, 1018

J

Jackson, John Bert, 1580
Jackson, Noah, 329
Jacobius, Lawrence, 1277
Jacobs, Francis Edward, 1390
Jacobs, Maurice Bernard, 478
Jaffe, Benjamin Meyer, 1580
James, Charles Stephen, 1018
James, Jonathan Kelly, 329
Janson, Christian William, 1196
Jefferson, Benjamin Lafayette, 254
Jesperson, Lydia, 61
Johnson, Elza Delno, 329
Johnson, Erik St. John, 479
Johnson, Fred Marcus, 329
Johnson, Hiram Leonard, 329
Johnson, Jonathan, 703
Johnson, Joseph E. L., 329
Johnson, Joseph Wilson, 407
Johnson, Leslie Gloyd, 408
Johnson, Nimrod August, 1106
Johnson, Philip Samuel, 775
Jones, John Bolling, 703
Jones, John Wesley, 479
Jones, Omer H., 329
Jones, Richard Wayland, 1277
Jones, Samuel Alexander, 61
Jones, Thomas David, 1018

K

Kahn, Maurice Guthman, 1017
Karr, Maskell Curwen, 1277
Kasten, William Charles, 61
Kean, Jefferson Randolph, 775
Kearney, Henry Walper, 329
Keating, Emmet, 703
Keays, Frederick Love, 857
Keefer, Matthew Henry, 196
Kefauver, Elmer C., 196
Kelly, Clyde Ernest, 1018
Kelly, Daniel Wade, 408
Kelsey, Arthur Jonas, 408
Kendall, William Scott, 775
Kenkel, Henry Frank, 1390
Kennedy, Ethelbert S., 480
Kennedy, Thomas James, 703
Kenward, Roy Leslie, 943
Keppel, Frederick Dudley, 1196
Kessell, James Everett, 196
Kessenger, John D., 563
Kidner, Frederick Clinton, 1388
Kilbride, John S., 703
Killius, William Joseph, 408
Kimbrough, William Edward, 1277
King, Clayton T., 1580
King, David Francis, 1277
King, M. Earl, 563
King, Margaret V. Painter, 703
Kingston, Thomas Smith, 1277
Kinney, Richard Anthony, 1277
Kipps, David M., 857
Kisner, Jacob C., 196
Knoll, James Lyle Jr., 703
Knox, Thomas Clifford, 254
Koempel, Franz, 1390
Korowitz, Isidore, 196
Kroeger, George Baldwin, 196
Krum, Astley Grant, 857
Kulka, William Ernest, 195
Kully, Herman Edward, 1106
Kunce, Fay Eddis, 196
Kunce, F. Edward (see Kunce, Fay Eddis)
Kutscher, Charles Fawcett, 702

L

Lafferty, Robert Hervey, 407
La Fontaine, Edgar Walker, 775
Lamb, Charles W., 1106
Lampton, William S., 480
Lancaster, Wilson McArthur, 857
Land, Joel Cameron, 1277
Lande, Frank, 857
Lanning, Lewis Mixell, 196
Lapsley, John Yantis, 329
Large, Wallace Bruce, 61
Larson, Erick Nels, 563
Lasher, Earl Parsons, 1390
Latham, Edgar M., 1277
La Valle, Irving Howard, 943
Laws, Clarence Jackson, 857
Leathers, Douglas Arnold, 1277
Lechner, Frederic Clemons, 480
Lee, Thomas Benjamin, 1389
Leonard, Walter Adnah, 408
Lesinger, Solomon Harold, 480
Levenson, Walter Sabin, 1388
Lewey, Frederic Henry, 1276
Lichtenstein, Adolf, 1021
Lieser, Ralph Lester, 480
Liles, Homer D., 1390
Lineberry, John Alson, 254
Linn, Robert Fred, 1278
Lister, George Fenton, 480
Lobdell, Effie Leola, 408
Long, James McMaster, 480
Longo, James Augustus, 196
Longo, Thomas Joseph, 562
Looper, James Burdine, 1017
Losche, Herbert, 408
Low, Triumph C., 1495
Lowe, Kenneth Vincent, 1495
Lower, Emory Galen, 480
Lynam, Frank, 1495
Lynch, Charles Francis, 1388
Lynch, Thomas Augustine, 1196
Lyons, John W., 480

M

Maben, Buel Wilber, 1196
Mabry, Thomas, 196
McAfee, Larry Benjamin, 943
McBride, Bernard, 563
McCall, Samuel W., 1196
McClain, Talmadge Bright, 408
MacConnell, John Wilson, 1276
McCord, James Bennett, 1390
McCorkle, William Everett, 196
McCoy, Earl Tucker, 1390
McCune, Caleb, 775
McDonough, John Patrick, 1495
McDougall, William Lowndes, 563
McDuffie, James Henry, 1495
McFadden, Ralph Hope, 563
McGarry, John Louis, 1278
McGavock, Edward Pointer, 60
Mack, Gertrude Griswold, 1390
MacKnight, Richard Patton, 775
McMahan, Asher Reid, 1390
MacMillan, Angus E., 196
McMurry, Marvin Caldwell, 254
McNinch, James Robinson, 408
Macon, Gideon Hunt, 1390
McPhail, John Gunn, 943
Macready, Charles F., 1018
Macy, Mary Sutton, 1496
Mahar, Gregory Doyle, 1496
Mandel, Milton, 563
Mann, Cornelius Atwood, 857
Mann, Harry Fiske, 254
Margoles, Maxon Edward, 1496
Mariner, James Sidney, 563
Markey, Edward Bond, 408
Markham, Homer Everett, 408
Marshall, William N., 563
Martin, Dawson Telesphore, 480
Mason, L. Dudley, 1496
Massey, William Walton, 1496
Matthews, John Henry, 563
Mayfield, James Isaac, 1496
Mays, Joseph W., 60
Meek, Henry Lehr, 1390
Meinhardt, Victor Julius, 408
Meinzer, Martin Stoetzel, 1196
Meminger, William Hinkle, 408
Mendenhall, Clinton Dickinson, 857
Mentzer, Stanley Herman, 1276
Mercer, Herman A., 1278
Meriwether, Thomas, 1018
Merritt, Silas Virgil, 408
Messinger, Harry Carleton, 407
Messner, Paul Oram, 1278
Meyer, Alfred, 328
Meyer, Harry H., 61
Meyer, Monte Fiore, 1494
Michalo, Adam Jr., 196
Micklethwait, William Dever, 563
Middlebrooks, Violet McMillian, 1496
Miller, Albert Winters, 1106
Miller, Harry H., 480
Miller, James W., 943
Miller, Roshier W., 408
Milnor, Guy Champion, 1494.
Minard, Edwy Leroy, 480
Minney, George Morrow, 408
Minot, Wallace Dobbs, 563
Mintz, Chauncey Abram, 563
Mitchell, Lang Allen, 1580
Mitchell, Ona F., 329
Moeller, Thor Olson Engh, 943
Moone, Samuel I., 563
Moore, Dudley A., 1496
Moore, Robert Martin Jr., 480
Moore, Walter Roger, 563
Moorman, Elmer Richard, 408
Moreland, George Boulton, 408
Morey, John Frederick, 563
Morrison, Clyde C., 408
Morrison, Lawrence Raymond, 563
Morrow, Carl William, 563
Morse, John Hinckley, 1278
Mosler, Ernst, 1278
Mott, Edwin Leland, 1278
Moyer, William Geisinger, 1018
Mullikin, Hugh Mathes, 1278
Mullin, Herbert Y., 408
Mullinnex, Merlin Eugene, 563
Mullins, Charles Ellison, 1390
Munn, Jesse Adolphas, 1390
Murphy, James Bumgardner, 562
Murphy, Joseph William Patrick, 480
Murray, George Martin, 1018
Musante, Joseph Bernard, 1496
Musselman, George Henry, 563
Mutschler, Louis H., 1496

N

Neergaard, Fred Adolph, 1106
Nelson, Carl Ferdinand, 480
Nelson, Francis Medard, 1106
Nelson, Harry Everett, 196
Nessley, George Bowers, 563
Nevins, Susan, 1580
Niblack, Earl S., 408
Nihizer, Adonis Hugh, 1278
Nock, Thomas O., 857
Norris, Samuel Royall, 1106
Norton, James Arthur, 254
Norton, James Francis, 857
Norton, James Stevens, 857
Nuttall, John Price, 1494

Deaths—*Continued*

O

O'Connor, Thomas Augustine, 61
Oesterreicher, Edward C., 563
Ogilvie, James, 254
Oguri, *Kanzo*, 1580
O Hara, Fred Summa, 1278
O Keefe, John *Elbert*, 1018
Oldham, Ernest Whitney, 196
Oman, Elmer *Samuel*, *1106* ·
O'Sullivan, Mary Elizabeth, 408

P

Pace, Garland H , 407
Pack, Alva Simonton, 1018
Palmer, Walter Walker, 1494
Paniello, Santiago, 254
Papik, Edward, 563
Parker, Arthur Otis, 563
Parker, James Edwin, 563
Parker, Paul Godwin, 1196
Parmeter, Rolland Louis, 1278
Parowski, Stephen Anthony, 1389
Parsonnet, Aaron E., 562
Patek, Arthur Jackson, 1276
Patterson, William *Maxwell, 480*
Pattillo, Richard Starr, 61
Patton, Chester Leroy, 703
Peabody, Percy Dickinson Sr., 563
Pearson, Charles Edward, 1196
Pecoraro, Amedeo Michael, 408
Peters, David Boteler, 1278
Petersen, Norman Victor, 408
Petersen, William Ferdinand, 478
Pfeiffer, *Henry March*, 408
Plummer, Orlay Edward, 1496
Plummer, Ralph Walter, 562
Poling, Owen, 1278
Porter, Leroy Valentine, 1496
Post, Ernest Nicholas, 408
Potthoff, Ernest William, 1580
Pres on, Anna Louisa, 1496
Preston, *Wendell Arthur, 329*
Price, Jerry Clay, 1196
Pulsifer, Nathan, 563
Purnell, James D., 1106

R

Raiter, Roy Ferdinand, 1278
Ramey, Clyde, 857
Ratcliffe, John Jay, 196
Ravdin, Marcus, 1106
Reaser, Edward Franklin, 195
Reed, Charles Anthony, 857
Reich Samuel, 61
Reichel, Emanuel Lawrence, 408
Reilly, John Victor, 480
Reinisch, Max, 703
Renn, George Alley, 857
Resnisky, Andrew Francis, 1390
Rether, Charles Hoffman, 1278
Reuschel, Leo George, 61
Rhees, Benjamin Rush, 196
Rhodes, Benjamin Franklin, 703
Rice George Henry, 703
Richards, George Henry, 1496
Richardson, Edward Elliott, 409
Richardson, Edwin Josiah, 563
Richardson, Francis N , 943
Richardson, Walter B , 857
Richey, Clifford Otto, 1106
Ridlon, Magnus Gervice, 857
Ridpath, Robert Ferguson, 407
Riese Bernhart L , 254
Rightor, Henry Haskell, 61
Rimer, Frank Hogan, 563
Robbins, Nelson John, 1580
Robertson, John Edwin, 480
Robinson, Claude *R.*, 1018
Robinson, Francis Arnold, 61
Robinson, John La Rue, 564
Robinson, Solomon M., 480
Rochester, John Robert Fountain, 1496
Rodman, Samuel Sayre, 328
Roeber, William John, 1496
Rogers, Harry, 480
Rogers, Henry Courtland, 564
Rogers, James Coburn, 1390
Roman, Desiderio, 857
Rommel, Jacob Frederick, 480
Ronneburger, George Fred, 564
Rosenfeld, William, 409
Rosenzweig, Maxwell, 480
Rossell, Edward Wood, 1278
Rossen, Julius Albert, 480
Rostenberg, Adolph, 943
Rowley, James Carl, 564
Ruch, Charles Henry, 61
Ruse, A O , 480
Russell, John Duncan, 564
Russell, Ralph Edward, 329
Rutter, Thomas Chichester, 564
Ryan, Mark Edward, 480

S

Sadler, Robert W., 196
Salmon, James Marvin, 254
Sandrock, Edgar Poe, 775
Saunders, William Gilchrist, 1018
Sauthoff, August, 1196
Savage, Seth Hubbard, 409
Sawyer, William B., 409
Scales, Seaborn Franklin, 196
Schatier, William J., 196
Schimberg, Arnold, 409
Schimmenti, John Marcus, 480
Schodron, Robert Charles, 61
Schoendorff, Walter, 61
Schofield, *Roger William*, 703
Schoolman, Noah, 1390
Schwarz, Otto Henry, 478
Scotti, Luigi, 564
Scouler, Ambrose Alphonse, 1196
Scull, Carl Brown, 409
Seitz, George, 1196
Sellers, Earl Dennis, 196
Shaffer, Thomas Mason, 564
Shaw, Robert Eugene, 1580
Shepard, William Marshall, 61
Sherlock, William Paul, 1580
Sherman, Henry S , 1580
Shoss, Isadore Hyman, 61
Shoudy, Loyal Ambrose, 562
Shumate, Frederick Ortman, 409
Shurly, Burt Russell, 1388
Shy, Milton Porter, 775
Siefert, John Frederick, 1390
Simmons, Benjamin Coleman, 564
Simon, Louis Jacob, 61
Simon, Saling, 564
Simonton, Ralph Waldo, 1018
Sink, Harley Herbert, 564
Skinner, Daniel Millikin, 564
Slavich, John Francis, 1580
Smart, Elliott Plummer, 1580
Smejkal, Frank John, 409
Smiley, James H , 775
Smith, Dudley Crofford, 562
Smith, Edward Kearney, 1278
Smith, Edward Sanborn, 409
Smith, Frank Campbell, 1196
Smith, George Alpheus, 775
Smith, Ira T , 564
Smith, John Vincent, 409
Smith, Joseph Littleton, 409
Smith, Mouldon, 409
Snell, Dana Merwin, *943*
Solley, Fred Palmer, 1106
Spackman, Ross Hugh, 1106
Spears, *Llewellyn Powell*, 409
Spears, Tunis R , 1106
Speed, George William, 1106
Speheger, Benjamin Albert, 409
Speir, Philip Van Buren, 564
Sperry, Frederick Noyes, 943
Squires, Frederick Eugene, 1106
Stanley, Samuel Everett, 943
Stanwood, Richard James, 857
Steel, John Mattern, 1018
Stein, Elias, 1106
Steiner, James Calvin, 196
Sterrett, William John, 1106
Stewart, Edward S , 409
Stewart, George Cameron, 564
Stewart, Roger Eaton, 195
Stone, John Henry, *409*
Stowe, LeRoy, 1580
Stratton, Owen Tully, 564
Street, Charles Edward, 1580
Strickland, James Oscar, 564
Strong, William Mason, 1018
Strozier, William Marcel, 196
Stuart, Lewis Frank, 196
Stump, Irwin C., 61
Stutzman, Raymond Howard, *1278*
Sullivan, Charles Peter, 1278
Suntzeff, Vasili Vasili, 943
Surber, Frank Raymond, 564
Swalm, *William Albert, 409*
Swayze, Henry Yandell, 1106
Sweet, John H T. Jr., *328*
Sweet, Lewis Kaigler, 1017
Swett, Paul Plummer, *328*

T

Talbert, Stanmore Watson, *943*
Talbot, Francis Farron, 1580
Talbot, John, 1106
Tapia, Antonio Garcia, 942
Tarwater, E. A., 1018
Taub, Israel Zangwill, 1106
Taylor, Emora Arthur, 1390
Taylor, Richard Augustus, 409
Teich, William E H., 409
Terry, Marcus Claude, 1106
Terry, Wallace Irving, 1278
Thal, Paul Edward, 409
Theobald, Frank John, 409
Thompson, George Dennis, 328
Thomson, Bertha E. Mangon, 943
Thornburgh, Albert H., 943
Thorne, Lewis, 1580
Thornton, James, 480
Thurston, Harry Elmer, 409
Tinsley, Jack Byrd, 1106
Tobin, Thomas Joseph, 943
Toumey, James William, 1494
Townsend, Charles Kennard, 1496
Tracy, James Nepthali, 409
Tripp, Leroy Richard, 1496
Tufts, Frank Servetus, 564
Turgasen, Francis Edward, 943
Turner, Henry William Biddle, 1106
Tussing, Rudolph Frank, 61
Twitchell, Edward Woodland, 1390
Tyndale, William *Robert*, 564

U

Uhlmann, Robert, 1278
Utter, Henry Abraham, 1106

V

Vail, Walter Chaplin, 1018
Valentine, Clarence Medbery, 1390
Vander Linde, Leslie Albert, 1018
Van *Dyke, Benjamin Smith*, 480
Van Urk, Thomas, 61
Vigeland, Jorg G , *1496*
Voigt, Arno Constantine, 1278
Von Lehe, John Christoph, 564
von Roeder, Ludwig Robert, 1278

W

Wade, James Hughey, 561
Wade, Simon Franklin, 1018
Waite, Willard Scott, 1018
Walker, Albert Gould, 1580
Walker, Hardin, 943
Walker, Lewis Albert, 1018
Walker, Thomas Franklin, 1494
Walker, Wallis Dunlap, 1278
Wallace, George Sellers, 1390
Wallace, William Smiley, 1278
Walsh, Frank Denton, 409
Walzl, Edward McColgan, 1018
Wantz, Sherman Robert, 1018
Ward, Charles Douglas, 1580
Ward, Edgar Ewell, 1496
Ware, Hugh Marshall, 1580
Warlick, Henry Clinton, 1496
Warren, David Edward, 407
Washington, William Henry, 564
Waters, Theodore Hammond, 254
Waters, *William* Isaac, 409
Watkins, Willis L , 943
Watt, Robert, 1580
Watwood, James Anderson, 409
Wear, Harry H , 562
Weathers, Henri Hudson, 564
Weaver, Enoch Randall, 254
Webb, Samuel Jr., 564
Weber, Burghard Andrew, 1390
Weidner, Morris Robert Sr., 409
Weigel, Bernard John, 1496
Weillhamer, *Otto (see Weillhamer,* Otto Edward Jr.)
Weillhamer, *Otto* Edward Jr., 564
Weiss, Joseph Perry, 409
Weiterer, Herman L , 564
Welch, James Harvey, 564
Wendt, Cyrus Leroy, 1018
Werner, Charles Henry, 1278
Westly, Soren S., 1496
Weymuller, Ernest A , 564
Wheaton, James Lucas, 1017
Wheeler, John P., 564
Whitaker, Preston W , 564
White, George Floyd, 1496
Wikoff, Clarence P., 61
Wilder, Winford Oliver, 1017
Wilhelmy, Orville, 409
Wilker, William Fawthrop, 1496
Williamson, Fred Yates (see Williamson, Frederick Yates)
Williamson, Frederick Yates, 409
Wills, William Judy, 1496 ·
Wilson, Louis F , 409
Wilson, Theron Samuel, 1018
Wilson, Thomas Phillip, 1496
Wimmer, George Glenn, 1496
Winton, William Cornelius, 564
Wise, Fred, 254
Wolfort, Benjamin Edgar, 1278
Wood, Samuel Houston, 1496
Wood, Thomas B , 1017
Woodbury, Frank Taylor, 1278
Woolsey, George, 60
Wright, Elmer D , 1496
Wright, Elva Annis, 61
Wright, Fred Snell, 61
Wrinkle, Thomas D., 1496

Y

Young, Josephine Estabrook, 1496
Young, Lemon Randle, 1496
Young, Robert, 1278
Young, Wade Hampton, 196

Z

Zander, Paul A , 1496
Ziegler, Charles H , 943

E

E COMPOUND · See Cortisone
Eh measurements, mental changes in chronically anoxemic patients, [Williams] 333—C
EAR See Deafness; Hearing, Oto—
  Middle, Infection of: See Otitis Media
  piercing ears for earrings, surgical sterilization of lancets for, 1226
  Ringing in: See Tinnitus
  surgery, fenestration operation, results, [Campbell] 1589—ab
  surgery, *fenestration operation*, use of histamine after, [Shambaugh] 265—ab
EARLY Rising *after Labor or Operation*: See Convalescence
EATING Places: See *Restaurants*
EATON, ARTHUR W., deputy director of Armed Forces Institute of Pathology, 1190
EBSTEIN'S anomaly: See Tricuspid Valve
ECHINOCOCCOSIS
  eradication, WHO to aid in, Latin America, 58
ECLAMPSIA
  diet and pre-eclampsia, [Penning] 341—ab
  treatment, *continuous caudal* or spinal anesthesia, [Kennedy] 1120—ab
  treatment, morphine, use *at Mengert's clinic*, 974
ECONOMICS, MEDICAL: See also Insurance, *sickness*; *Medical* Service; Medically Indigent
  Bureau of Medical
    American Medical
  costs of *hospitalized*
    & Altman] *835;
  economist (*Colin Cl*
    858
  "Why Medical Economics?" *by Dr. R. B.* Robins, 1263—E
ECZEMA
  Contact: See Dermatitis venenata
  vaccinatum, chloramphenicol (*chloromycetin*) for, [Fasal] *759
  vaccinia simulating variola in eczematous child, [Good] 499—ab
EDEMA: See also Ascites, Dermatomyositis
  General or Universal of New born: See
    Fetal
i, 886
ls; Students
ng Pictures; Television
Health
Health, Education and
d States
EDUCATION, MEDICAL: See also Graduates; Schools, Medical; Students, Medical; University
EDUCATION, MEDICAL—Continued
  American educators held institute on, in Japan, 483; [Long] 781—C
  A M A Annual Congress on, 665
  A M A Council on: See American Medical Association
  current emergency (Korean War, etc.) and, *109; 662
  curriculum, 1095—E; (Joint Committee statement) 1112
  curriculum, new, Norway, 705
  Fellowships: See Fellowships
  Financial Support: See Schools, Medical
  Graduate Activities of Section on *Training* established within Council, 663
  graduate, Conference Committee on *Graduate Training* in Surgery by A M A and American College of Surgeons, 1468—E; *1503*
  graduate continuation courses for physicians, *132; 1265—E; *1285
  graduate courses at Tulane, 557
  graduate short course in Cuba, 1105
  graduate study, Burke County Medical Society, N C , 250
  graduate study in Britain, 1274
  graduate study, physicians seek, Burke County Medical Society, N. C., 250

director Dr.

graduate training programs acceptable by American Board of Psychiatry and Neurology, *110
graduate training programs, sponsored by Massachusetts Medical Society, 557
graduate, U. of Texas opens Postgraduate School, 401
in U. S and Canada, *109; 182—E
Internship: See Interns and Internship
Joint Committee on Medical Education in time of National Emergency, (statement adopted by A M A Council and Association of American Medical Colleges), 1095—E; 1111
medical act of 1950; "Goodenough Year," England, 330
number, Sept. 9, 1950, page 109
Premedical: See also Basic Science
premedical, conference on, 325
premedical requirement and record of 1949 freshman class, *125
Residencies: See Residents and Residencies
Scholarships: See Scholarships
survey of by A M A. Council and Association of American Medical Colleges, *111; 663; 695
teaching inhalational and physiologic therapy of respiratory disease, *33
teaching physical medicine and rehabilitation, [Rusk] *730
under universal military training or a national service act involving total mobilization, 1095—E; (Joint Committee statement) 1111
EDWARD, INDIA (MRS.), cry in the wilderness: appeal to support compulsory health program, 552—E; (President Henderson's *message*) 553
EFFORT: See Energy
Angina of: See Angina Pectoris
EFFUSIONS: See *also* Exudates
subdural hematomas and, due to obstetric trauma, [Jackson] 274—ab
EGAS MONIZ
address on cerebral arteriography also prefrontal leukotomy, 1498
EGG WHITE
carcinogenic factor, [Hartmann] 74—ab
EJACULATION
sympathectomy effect on, [Rettef] 960—ab
ELDERLY: See Old Age
ELECTIONS
A M A. resolution on absentee ballot, 1480
recent and physicians as citizens, 318—E; 1007—E; 1009; 1186; [Henderson] *1260
ELECTRIC: See also Electro—
Current: See Ion Transfer
Hearing Aids: See Hearing Aids
shock, fatal cerebral complications, [Schulte] 501—ab
shock, fatal, from electrically charged cattle fence, 1046
shock treatment in hypoxemia, [Holmberg] 963—ab
shock treatments, harmful effects? combined with subshock doses of insulin, 1139
ELECTROCARDIOGRAPHY: See Heart
ELECTROCOAGULATION
of tumors of hypophysis, [Bauer] 961—ab
ELECTROCOMA. See Electric Shock Treatment
ELECTROENCEPHALOGRAPH: See Brain
ELECTROLYTES
bedside management of problems of fluid balance, [Scribner & others] *1167
effect of ACTH and cortisone on, [Sprague & others] *1344
importance in shock, [Rosenthal & Tabor] 413—C; [Hurley] 1502—C
in gastric juice in relation to potassium, [Martin] 872—ab
in infantile diarrhea, [Hoffman] *1160
ELECTROMYOGRAPHY. See Muscles
ELECTROPHORESIS: See Ion Transfer
[illegible]

[Sarnoff &

Electric shock treatment
Batrow Neuromuscular Stimulator Model A, 929
ELECTROTHERMY: See Diathermy
EMBALMER
fatal homologous serum jaundice in, (case 8) [Runyan & others] *1067
sensitivity to embalming fluid, 1417
EMBOLISM. See also Thrombosis
air, 1155—ab
air, puncture and aspiration of right auricle for, [Hummel] 73—ab
air (venous), right ventricle puncture during, [Frey] 1130—ab
cerebral, and cerebral hemorrhage, 1064—ab
cerebral, use of anticoagulants in, 812
fatal, problem in surgical patients, [Farmer] 1027—ab
pulmonary, evaluation of policy for prophylaxis and therapy, [Baker] 494—ab
pulmonary, without infarction, [Lenègre] 878—ab
recurrent embolization, ligate auricular appendage for, [Baronofsky] 424—ab
EMBRYOLOGY: See also Fetus
laboratory of, Brazil, 1581
EMERGENCY
cases, ethics involved, 753—ab; 990—ab
medical service, established by Medical Society of County of New York, 321
EMERSON resuscitator, use in inhalational therapy, (Fig 13-14) *29
EMERSON-Ivy-Schafer Method: See Schafer
EMESIS: See Vomiting
EMIGRANTS: See Immigrants
EMIGRE Physicians: See Physicians, foreign
EMOTIONS: See also Fear; Mental Hygiene; Psychosomatic Medicine
aspects of miners' nystagmus, [Stern] 585—ab
factors in hypertension, [Murphy] 797—ab
in disordered society of refugee population of 30,000, 1391
problems in children, medical implications, [Rich; Jensen] 1034—ab
treatment centers for emotionally disturbed children, 1386
EMPHYSEMA
mediastinal, [Evans] 1303—ab
EMPLOYEES: See Industrial Health
EMPLOYMENT Opportunities for Physicians: See Physicians, positions open
EMPYEMA
tuberculous, streptomycin plus alkalinization in, [Staines] 420—ab
ENCEPHALITIS: See also Encephalomyelitis
allergic, [Peers] 336—ab
Arthropod Borne Virus Encephalitides (film review), 950
ENCEPHALOMYELITIS
allergic experimental, [Halpern] 880—ab
ENDAMEBA Infection: See Amebiasis; Colitis, amebic
ENDOCARDITIS
bacterial, blood picture in, treated with penicillin, [Dammert] 1311—ab
bacterial due to Escherichia coli, [Smith] 957—ab
bacterial, fatal due to hemolytic Staphylococcus aureus, penicillin treatment, [Holzman] *923
bacterial, hyaluronidase plus penicillin for, [Moseley] 958—ab
bacterial malignant, [Jimenez-Diaz] 347—ab
bacterial subacute, adequately treated failures, [Littmann] 1125—ab
bacterial subacute, due to streptobacillus moniliformis; recovery after penicillin, [Petersen & others] *621
bacterial subacute, dihydrostreptomycin, penicillin and aureomycin for, [Friedberg] *531
bacterial subacute, penicillin in, Matthew's report in *British Medical Journal*, 565
bacterial subacute, penicillin, streptomycin and/or sulfapyridine for, [Van Wijk] 275—ab
bacterial subacute, recovery rate in: presulfonamide era; sulfonamide era; penicillin era, [Friedberg] *527
bacterial subacute. Streptococcus sanguis in, [de Carvalho Lima] 1524—ab
bacterial subacute, streptomycin for, [Willcox] 1036—ab
bacterial, treated with penicillin, follow-up of, [Gorlin] 714—ab
bacterial, use of 4 antibiotics alone or combined (penicillin, chloramphenicol, aureomycin, streptomycin) [Hunter] *524
fetal, idiopathic cardiac hypertrophy relation to, [Glynn] 715—ab
lenta, penicillin for, [Hantschmann] 799—ab
lenta, streptomycin for, [Wollheim] 1593—ab
lenta, supronal, penicillin and streptomycin for, [Boden] 427—ab
verrucous, Libman-Sacks disease with renal involvement, [Daugherty] 264—ab
ENDOCRINE GLANDS: See also under names *of specific glands*
Belgian Society of Endocrinology, 1108
factors in female sterility, [Finkler] 789—ab
ENDOMETRIOSIS
clinical aspects, [Fallon] 578—ab
external, [Scott] 203—ab
ENDOMETRIUM
transitional, [Oram] 1595—ab
ENDOPHTHALMITIS
parasitic, cause of massive separation of retina, [Heath] *1148
ENDOSCOPY, [Johnston] *978
ENEMA
barium to reduce intussusception in infants and children, [Ravitch] 1029—ab
ENERGY: See also Exercise
Atomic: See Atomic Energy
expended by patients on bedpan and commode, [Benton & others] *1443
human, grant for study of, Chicago, 1490
Value of Food: See Calories
ENTERIC. See Intestines
ENTEROBIASIS: See Oxyuriasis
ENURESIS. See Urine Incontinence
ENVIRONMENT
bacteriologic, in chronic or repeated infections, [Prigal] 1585—C
EOSINOPHILIC GRANULOMA: See Granuloma
EOSINOPHILS
count changes in response to ACTH, before, after and during cortisone treatment, [Sprague & others] *1344
count, effect of ACTH, [Howard & others] *1348
measurement as index of adrenal cortex activity; Thorn test, [Hernandez Morales & others] *379
EPHEDRINE
in screening test for cortisone substances, [Abelson] 716—ab
EPIDEMIC JAUNDICE: See Liver Inflammation
EPIDEMICS: See also Communicable Diseases; under names of specific diseases
in Far East, [Duncan] 1501—C
in Iceland simulating poliomyelitis, [Sigurdsson] 1508—ab
in Turkey, 411
Mecca pilgrimage free of, 1195
Prevention: See Immunization; Vaccination
reports on, U. S, 1492
EPIDEMIOLOGISTS
in hospitals, [Felsen], 65—C; (reply) [Brahdy] 783—C
EPIDERMIS: See Skin
EPIDIDYMITIS
nonspecific, treatment, 1048
EPILEPSY
clinics for children, Md, 1491
complications: carotid sinus syndrome, [Rabwin & Merliss] *463
genius and psychosis; article by Russell Brain in *British Medical Journal*, 692—E
osteogenesis imperfecta, and, 1140
petit mal, 724
psychomotor, death after phenurone therapy, [Levy] 494—ab
surgical treatment, concept of epileptic focus, [Meyers] 581—ab
surgical treatment, value of electrocorticography, [Guillaume] 800—ab
treatment, electrocoagulation of cerebral cortex, [Verbeek] 501—ab
treatment, hospital, Denmark, 778
treatment, mesantoin, pancytopenia due to, [Davies] 345—ab
EPINEPHRINE: See also Arterenol (nor-epinephrine)
arterenol (nor-ephinephrine) and, [Kroneberg] 963—ab
arterenol (nor-epinephrine) and, as distinct entities, [Kositchek & Rabwin] *826
effect on circulating eosinophils, [Hernandez Morales & others] *379
increased urinary output in pheochromocytoma, [Engel] 1408—ab
EPIPHYSES
separation of, in upper femur, [Sønder] 1523—ab
EPITHELIOMA
Chorioepithelioma: See Chorionic Carcinoma
EPSILAN
treatment of venous thrombosis, [Ochsner & *others*] *831
EQUIPMENT See Apparatus; Medical Supplies
ERB-GOLDFLAM'S Disease: See Myasthenia Gravis
ERECTOR spinae Transplant: See Muscles, transplantation
ERGOMETERS
to measure grip, [Walnerdi] *619
ERGOT
dihydrated alkaloids of, in disorders of peripheral circulation, [Eichler] 1033—ab
ERUPTIONS See Herpes, Measles; Rubella; Scarlet Fever: Urticaria
Industrial. See Industrial Dermatoses
ERYTHEMA: See also Lupus erythematosus
epidemic arthritic, Haverhill Fever, [Morse] 958—ab
Multiforme, Stevens-Johnson Disease: See Stevens-Johnson Disease
nodosum, relation to tuberculosis and to sulfathiazole, 1568—E
Nodosum (Valley Fever): See Coccidioidomycosis
ERYTHREMIA: See Polycythemia
ERYTHRIN
antibiotic from red blood cells, 1185—E
ERYTHROBLASTOSIS, FETAL
affecting one twin, [McFadden] 712—ab
in newborn due only to ABO incompatibility, [Seigneurin] 1132—ab
prevention, Rh hapten, [Wolf & others] *88
primipara immunized by previous intramuscular injection of Rh (D) blood, [Sharnoff & Jasper] *845
treatment, exchange transfusion in [Brancato] 575—ab
treatment, Rh hapten, [Schmigelsky] 341—ab
treatment, substitution transfusion, [Molony] 422—ab
ERYTHROBLASTS: See Anemia, erythroblastic familial
ERYTHROCYTES
antibiotic from, 1185—E
Count: See also Anemia, Pernicious; Polycythemia

ERYTHROCYTES—Continued
  count, values of adolescent workers, Brazil, 1500
  dark field microscopic studies, [Haenel] 428—ab
  serum test for active tuberculosis, [Smith] 412—C
  Sickling. See Anemia, sickle cell
ESCHERICHIA
  coli, endocarditis due to, [Smith] 957—ab
ESOPHAGUS
  cancer of cardia with partial thoracic stomach, [Smithers] 71—ab
  diverticula, [Hansen] 589—ab
  diverticula (pharyngoesophageal), surgical treatment, [Koch] 963—ab
  surgery, esophagoduodenal anastomosis, [Palumbo] 1306—ab
  varices (bleeding), balloon tamponage for, [Sengstaken] 203—ab
  varices, occurence in diaphragmatic hernia and in acute infectious hepatitis, 810
ESTRADIOL
  treatment of postmenopausal toxic diffuse goiter, [Cachera] 1523—ab
ESTROGENIC SUBSTANCES
  Diethylstilbestrol: See Diethystilbestrol
  treatment, clinical usefulness, [Page] 1518—ab
  treatment of breast cancer, [Abramson] 494—ab; [Portmann] *513; [Lamar] 1110—C; 1323
  treatment of breast cancer metastatic to bone, *[Garland & others] (Council report) *997*
  treatment of ozena, [Hildernisse 717—ab
  treatment of prostate cancer, [Miller] 1034—ab, [Brendler] 1207—ab
  treatment of rheumatic carditis, [Brewer] 340—ab
  water soluble, Theelin N.N R. (Parke, Davis) 927
ESTRONE (Theelin)
  N N R (Parke, Davis) 927
ETHER
  Anesthesia: See Anesthesia
  intravenous, contraindicated, for cardiac patients with arteriosclerosis, 725
ETHICS, MEDICAL: See also Privileged Communications
  A M A resolution on proposed amendment to Principles of Medical Ethics, 1481
  codes of, restraint of trade in relation to prepayment plans, (Bureau report) 653
  commissions, rebates and secret remedies, 24—ab
  grievance committees, 56; 247; 668; 691—E
  groups and clinics, 846—ab; 1089—ab
  kickbacks contrary to public policy, 47—E; 652
  medical advertisements, [Boles] *364
  misunderstandings to be avoided, 1239—ab
  precedence when several physicians are summoned; arbitration, 96—ab; 927—ab
  standards, usefulness, nonsectarianism, 817—ab, 1561
ETHINYL ESTRADIOL -
  Lynoral, N N.R (Parke, Davis) 927
ETHYL ETHER
  danger from drinking fluid of bubbles in Christmas tree lights, 1601
ETHYL IODOPHENYLUNDECYLATE (pantopaque)
  N N R (description) 1464; (Lafayette) 1464
*di*ETHYLSTILBESTROL: See Diethystilbestrol
EUGENIC Sterilization: See Sterilization, Sexual
EUROPEAN
  Congress on National Associations of Gastroenterology in Italy in 1952, 200
EUTOCIN
  active principle of uterine contractions in parturition, [Hanon] 277—ab
EVE rocking method for artificial respiration, [Gnirrep] 799—ab; [Gordon & others] *1447; (Council report) *1455
EVIDENCE: See Medicolegal Abstracts at end of letter M
EWING, OSCAR R.
  health and politics, 930—E
EXAMINATION: See American Board; Physical Examination; State Board; etc.
EXCHANGE: See Fulbright Exchange Program
EXECUTIVE
  business, forced retirement at 65, [Unger] 1502—C
  exhaustion in young business executives, [Portis & others] *1162
EXERCISE: See also Atheletics
  corrective, for physical defects, 79
  test in angina pectoris, [Raynaud] 587—ab
  test in coronary insufficiency, [Stein] 707—C
  therapeutic, Brockman Exerciser, 1375
  therapeutic, progressive resistance exercise in poliomyelitis, DeLorme table, [Mead] *458
  Tougas Exercising Wheel, 929
  training in, and its evaluation, 200
EXFOLIATION: See Dermatitis exfoliativa
EXHAUSTION: See Fatigue
EXHIBITS: See Health Museum; Heart
  A M A.: See subheads under American Medical Association, Bureau of Exhibits, Scientific Exhibit, Technical Exposition
EXHUMATION. See Medicolegal Abstracts at end of letter M
EXOPHTHALMIC GOITER: See Goiter, Toxic
EXOPHTHALMOS: See also Goiter, Toxic
  hyperthyroidism and, [Andersson] 272—ab
  hypophysial, from thiouracil therapy, [Maranon] 1594—ab
EXPECTORATION: See Sputum
EXPERIENCE
  use of, address by Sir Heneage Ogilvie, 1264—E
EXPERIMENTATION: See Animal Experimentation; Research
EXPLOSIONS
  Atomic: See Atomic Energy
  Hazard See Anesthesia
EX-SERVICE Men: See Veterans
EXTREMITIES. See also Arms; Foot; Legs
  Amputation: See Amputation
  Cramps: See Cramps
  pain in, cause of numbness and tingling a variant, 358
  Paralysis: See Hemiplegia
EXUDATES: See also Effusions
  losses in burned patients, [Moore] 953—ab
EYELIDS
  Granular. See Trachoma
  slight ptosis of upper lid, 1535
EYES: See also Blindness; Conjunctiva; Cornea; Lens, Crystalline; Ophthalmology; Retina; Vision; etc
  accommodation, dark adaptation and vitamin A, [Youmans] *34
  astigmatism, 726
  bacteriology laboratory, Canada, 1387
  discharge from infant's eyes, 79
  Disease: See also Conjunctivitis; Glaucoma; Iridocyclitis; Iritis; Keratitis; Trachoma; etc
  disease, inflammatory, experimental use of cortisone in, [Steffensen] 709—ab
  failing vision caused by bony spike compressing optic nerve, [Falconer] 207—ab
  fundus oculi in elderly patients without hypertension, [Vogelius] 876—ab
  herpes zoster, aureomycin for, 1583
  injuries from indelible pencils [Passow] 428—ab
  manifestations in toxoplasmosis, [Ullerich] 587—ab
  manifestations in tuberculous meningitis treated by streptomycin, [Heinsius] 1521—ab
  pain of ocular origin and headache, [Ruedemann] *517
  paralysis (multiple muscle), diagnosis, [Krewson] *534
  paralysis, ophthalmoplegic migraine, [Patrikios] 338—ab
  Protrusion: See Exophthalmos
  refraction during pregnancy, 1140
  vitamin A deficiency effect on, [Youmans] *35
EYESIGHT: See Vision

F

FABRICS: See Clothing
FACE: See Cheek; Mouth; Nose
  Paralysis: See Paralysis
"FACTOR X," antifungal antibiotics; "fradicin," 850—E
FACTORY Workers: *See Industrial Health*
FACULTY: See Schools, Medical
FALLOT, Tetralogy of. See Heart anomalies
FAMILIES: See Children; Maternity; Reproduction
FAMOUS Persons: See Great Men
FAR EAST
  tour of, impressions of U. S Army Medical Corps, [Duncan] 1501—C
FASCIA
  tuberculosis of thoracic wall, [Hensel] 1315—ab
FASTING: See also Hunger
  therapeutic use, especially in hypertension and diabetes, 285
FAT: See also Obesity; Oil
  fatty infiltration of liver after ACTH, [Pelner & Waldman] 412—C
  fatty infiltration of liver in alcoholics, [Cachera] 1315—ab
  in diet in jaundice, [Steigmann] *1077
  intestinal absorption, in sprue, [Jimenez Diaz] 430—ab
  lipotropic substances action in liver disease as measured by radioactive phosphorus, 1566—E
  metabolism, ACTH and *cortisone effect* on, [Sprague & others] *1342
  tissue, ascorbic acid in, [Page] 1590—ab
FATIGUE: See also Asthenia
  exhaustion in young business executive, [Portis & others] *1162
  in hypotension, 1140
FEAR
  causes of, among obstetric patients, [Bloss] *1358
FECES
  bacteria in ulcerative colitis, chemotherapeutic agents effect on, [Marshall & others] *900
  defecation, energy expended by patients on bedpan and commode, [Benton & others] *1443
  "gluelike stools," 724
  Loose Stools: See Diarrhea; Dysentery
FECUNDATION: See Impregnation, artificial
FECUNDITY: See Fertility
FEDERAL: See United States
  Control of Medical Care: See Insurance, sickness (compulsory); Medicine, state
  Funds, Grants, Aid: See United States Government
  Income Tax: See Tax
  Legislation: See Laws and Legislation, federal
  Security Agency: See Health, U S P H S.
FEEBLEMINDED: See Mental Defectives
FEEDING: See Infants, feeding
FEES: See Schools, Medical
FEET: See Foot
FELLOWSHIPS. See also Scholarships
  American Cancer Society, 1015
  A M A. See American Medical Association
  Arthritis and Rheumatism Foundation (Illinois chapter), 190
  Ayers, McKenna and Harrison, 559
  exchange, in cancer research, British-American, 477
  Fellowship Committee of Medical Association of Israel, 1194
  for clinical training in allergy, Chicago, 770
  Griswold (Harriet Ford) for rehabilitation in physical medicine, 1386
  Harvard University, 557
  in basic sciences, Iowa, 1385
  in industrial medicine, Ohio, 939
  in pediatric cardiology, Chicago, 1272
  Life Insurance Medical Research Fund, 560; 772
  Louisiana Heart Association, in cardiology, 55
  Meyer (Karl), established, Chicago, 770
  Mickle, award, Canada, 1195
  National Heart Institute, 556
  National Research Council accepting applications for, 853
  National Tuberculosis Association and American Trudeau Society, 325
  Putnam (Helen), open, 1385
  Runyon (Damon) Clinical Research, 1493
  Schering, in endocrinology, 559
  state, in public health, New York, 939
  U. S Atomic Energy Commission, 1381
  USPHS, 400
  WHO, for study abroad, 322
FEMUR
  separation of upper epiphyses, [Sønder] 1523—ab
FENESTRATION Operation: See Ear surgery
FENGER (Christian) Lecture: See Lectures
FENGER, MOGENS, awarded Barfred-Pedersen prize, Denmark, 779
FERRIC; Ferrous: See Iron
FERRIGEN
  saccharated iron oxide, [Brown & others] *1089
FERTILITY: See also Impregnation; Reproduction; Spermatozoa; Sterility; Sterilization, Sexual
  effect of drugs on, [Tompkins] 261—C
FERTILIZATION: See Impregnation
FETUS. See also Embryology; Infants, Newborn; Placenta; Pregnancy
  amino acid pattern in plasma, [Crumpler] 1035—ab
  endocarditis in, relation to idiopathic cardiac hypertrophy, [Glynn] 715—ab
  Erythroblastosis: See Erythroblastosis, Fetal
  hydrops, primipara immunized by previous intramuscular injection of Rh (D) blood, [Sharnoff & Jasper] *845
  hypervitaminosis effect on fetal mouse bones, London, 776
  intrauterine transmission of Schizotrypanum cruzi disproved, Brazil, 1281
  maternal measles effect on, [Packer] 796—ab
  Premature: See Infants, premature
  Rh factor in: See Rh Factor
FEVER: See also Rheumatic Fever; Scarlet Fever, Typhoid; Typhus
  Glandular: See Mononucleosis, Infectious
  Haverhill. See Erythema, epidemic arthritic
  malaria-like, in gastric cancer, [Hartmann] 1594—ab
  Malta. See Brucellosis
  of undetermined origin, 1223
  obscure, common causes, response to newer antibiotics, [Kirby] *236
  Parrot: See Psittacosis
  Q: See Q Fever
  Rabbit: See Tularemia
  Rat-Bite: See Rat-Bite Fever
  Relapsing: See Relapsing Fever
  Rocky Mountain Spotted Fever: See Rocky Mountain Spotted Fever
  Therapeutic: See also Measles, therapeutic
  therapeutic, in asthma, 1419
  three-day, [Webb] 951-ab
  Undulant: See Brucellosis
  Valley: See Coccidioidomycosis

FIBROIDS: See Uterus tumors
FIBROPLASIA, Retrolental: See Lens, Crystalline
FIBROSARCOMA
  prognosis, [Saltzmann] 1313—ab
FILARIASIS
  eosinophilia in, Thorn test, [Hernandez Morales & others] *379
FILMS: See also Moving Pictures
FINGERS: See also Hand; Nails; Toes
  cancer (primary), [Russell] *19
  oil forced into, 1221
  surgical sterilization of lancets for puncturing, 1226
  "tufting" of terminal phalanges, 886
FINGERNAILS: See Nails
FIRE: See also Burns
  effects of extreme heat on man, [Buettner] *732
FIRST AID: See also Emergency Medical Service
  Accident Handbook of Children's Hospital of Boston for use in home, 1007—E
  American Red Cross handbook on, 699
FISH: See also Codfish
  botulism due to home pickled herring, [Dolman] 712—ab
FISTULA
  arteriovenous, of aortic arch; successful treatment, [Proctor] *818
FITNESS: See Physical Fitness
FITS: See Convulsions
FLAMEPROOFING fabric suits, [Buettner] *736; *737
FLAVONES: See Rutin
FLAXEDIL
  evaluation, [Unna & others] *418
FLEAS
  plague infection in, 1386
FLIES: See Myiasis
FLIGHT: See Aviation
FLOUR
  maturing agents: ammonium persulfate, [Arnold] 874—ab
"FLU": See Influenza
FLUIDS: See also Milk; Water
  balance, bedside management of problems of [Scribner & others] *1167
  Body: See also Ascites; Cerebrospinal Fluid
  body, identification of barbiturates in, [Selwyn] 271—ab
  importance of electrolytes in shock, [Rosenthal & Tabor] 413—C; [Hurley] 1502—C
FLUKES: See Schistosomiasis
FLUORESCEIN
  diagnosis of brain tumors, [Moore] 1517—ab
FLUORIDE
  poisoning in reducing aluminum ore, 1323
FLYERS; Flying: See Aviation
FOLIC Acid: See Acid, Folic
FOOD: See also Diet; Fruit; Nutrition; and under names of specific foods as Cheese; Fish; Milk
  Appetite for: See Appetite
  A.M.A. Council of: See American Medical Association
  chemicals in, 1010; 1267; 1381; 1488; 1572
  chemicals in, danger from; Food Protection Advisory Committee, 849—E
  components, Vitamin B deficiencies effect on selection of, [Scott] 874—ab
  Deficiency: See Nutrition
  Energy Values: See Calories
  Food and Nutrition Board recommended food protection advisory committee with full time secretary, 849—E
  frozen, Birdseye, 847
  handlers, Behind the Menu, (film review) 1284
  handlers, physical examination, state laws on, (Bureau report), 862
  Hospital Food Service Personnel Training (film review), 202
  importance of; skin testing and intentional feeding, [Leibowitz & others] *990
  Infants: See Infants, feeding
  Ingestion of: See Indigestion
  Lack of: See Fasting; Hunger
  Poisoning: See also Botulism
  poisoning, increase in, England, 776
  residue hazards of organic phosphorus insecticides, [Lehman & others] *108
  U.S. Food and Drug Administration convictions, 100
  we eat, 1581
FOOT: See also Orthopedics
  clubfoot (congenital), treatment with wedging casts, [Hart] 790—ab
  pain in, 1326
  vascular tone fails to return in after sympathectomy, [Lynn] 500—ab
  Warts on: See Verruca, plantar
FOREIGN Countries: See also European; United Nations; under names of specific countries
  guests at A.M.A. session to be entertained by committee, 695
  Medical Schools: See Schools, Medical
  Physicians: See Physicians, foreign
FOREIGN BODIES
  effects of swallowing box of matches, 810
FOREIGNERS: See Immigrants
FORENSIC Medicine: See Medical Jurisprudence
FORMALDEHYDE
  sensitivity to embalming fluid, 1417
FOSTER, L. FERNALD, answered CIO advertising against A.M.A., 933
FOUNDATIONS
  Adair (Fred L.) created, Chicago, 1013
  Arthritis and Rheumatism (fellowship), 190; (campaign for funds), 855; 1576
  Colvin Memorial Surgical Fund, Minnesota, 55
  Health Information Foundation Citizen's Committee, 325
  Hematology Research (fellowships), 474
  Industrial Hygiene Foundation, (head: Dr. Walmer) 1578
  Kellogg (finances national nursing improvement program for next 3 years), 1191
  Lasker Planned Parenthood (awards), 910
  Levinson Memorial, 853
  Life Insurance Medical Research Fund (fellowships), 560; 772
  Lovelace, clinic dedicated, New Mexico, 1192
  Mahoning Medical Service, 403
  Markle (to continue grants), 251; (report) 1101
  Milbank Memorial Fund, (grant to train plastic surgeons, New York) 1273
  Muscular Dystrophy Research, Texas, 192
  National Science Foundation (21 scientists nominated to), 935; (correction), 1010
  Nutrition Foundation, Inc. (grants aid for research), 1193; (Board) 1487
  Oklahoma Medical Research, 475
  Runyon (Damon) Memorial Fund, 1385
  Seaman (Louis Livingston) Fund announced by New York Academy, 698
  Taylor (Lester H.) Memorial Fund, Ohio, 1274
  Whitney (Helen Hay), 940
FOURNEAU, E., French chemist, [Vignes] 201—C
FOUTS, ROY
  A.M.A. resolution on absence of, 1481
FRACTURES: See also under names of specific bones
  Ambulatory Fracture Association meeting—Oct. 16-19 in Cincinnati, 559
  treatment, nailing, severe roentgen burn during, [K'ntscher] 274—ab
FRADICIN, antifungal antibiotics, 850—E
FRAGILITAS OSSIUM
  osteogenesis imperfecta and epilepsy, 1140
FRANK BILLINGS Lecture: See Lectures
FRATER, KENNETH, death, 912
FREEZING: See also Cold; Frostbite
  frozen bone bank bone in orthopedic surgery, [Leonard] 1213—ab
  Quick-Frozen Food: See Food
  to destroy trichinae, 212
FRIEDENWALD Lecture: See Lectures
FRIEDLÄNDER'S Bacillus: See Klebsiella Pneumoniae: See Pneumonia
FRIGIDITY
  psychosomatic aspects, [Kroeger & Freed] 571—C
FROSTBITE
  gangrene after, heparin to prevent, [Lange] 345—ab
FROZEN: See Freezing
FRUIT: See also under specific names as Apples; Apricots; Grapefruit; Orange; Peaches; Pears
  cocktail, Sacramento Brand Dietetic Pack, 549
  enamel erosive properties, [Miller] 266—ab
  juices and fruit enamel erosive properties, [Miller] 266—ab
  Monarch Brand Dietetic Pack, 1092
  Rice Diet (Kempner): See Blood Pressure, High
FULBRIGHT Exchange Program, 192
FUNDS: See Foundations
FUNDUS oculi: See Eyes
FUNGI
  antibiotics: "fradicin," 850—E
  Infection with: See Mycosis
FUNNEL CHEST: See Thorax

G

GAFFIN, BEN, & Associates; J.A.M.A. readership survey by, 633
GALLBLADDER: See also Bile Ducts; Biliary Tract
  calculi and diet, 512
  calculi (reply) [Riese] 360
  dyskinesia, inflammation, infections, etc., Congress on Gastroenterology discussed, 198; 199
  surgery, postoperative diseases, Congress discusses, Spain, 199
GALLSTONE: See Gallbladder, calculi
GAMMA
  benzene hexachloride, N.N.R., (description) 548; (Strasenburgh), 548
  globulin treatment of scarlet fever, [Weinstein] 1405—ab
GANGLION
  stellate, ammonium sulfate injected into, in angiana pectoris, [Stubbs] 1032—ab
  stellate block in intracracranial pathologic states, [Naffziger] 1120—ab
  stellate, block with procaine solution, 1533
  sympathetic, inject procaine for heart disorders, [Braeucker] 799—ab
GANGRENE: See also Breast gangrene; Stomatitis, gangrenous
  after scarlet fever, [Bethe] 1312—ab
  in diabetics, midleg amputations for, [Silbert & Haimovici] *454
GANTRISIN: See Sulfisoxazole
GARCIA TAPIA, ANTONIO, death, 942
GAS: See also under names of specific gases as Carbon Monoxide; Helium; Oxygen
  Embolism: See Embolism, air
  nerve gases, problems in chemical warfare, [Wood] *606
  Poisoning: See Carbon Monoxide
GASOLINE
  intoxication, lung symptoms, [Zucker] 489—ab
GASTRECTOMY: See Peptic Ulcer, surgical treatment; Stomach surgery
GASTRIC: See Stomach
  Juice: See Stomach secretion
  Ulcer: See Peptic Ulcer
GASTRITIS: See Stomach inflammation
GASTROENTERITIS
  report on epidemic in U. S., 1492
GASTROENTEROLOGY
  conferences at Bellevue, 324
  European Congress of National Associations on (2nd), 198; 200
  subspecialty board in, of American Board of Internal Medicine, 325
GASTROINTESTINAL TRACT: See also Abdomen; Duodenum; Indigestion; Intestines; Stomach
  allergies, [Turnbull] 874—ab
  cholinergic and anticholinergic drugs, [Grimson] 1211—ab
  disease, potassium deficiency in, [Smith] 1591—ab
  diseases, calcium treatment indicated?, 1325
  diseases, yeast in treatment, 211
GEE-Herter's Disease: See Celiac Disease
GELATION
  anticancer polysaccharides, 932—E
GEM Model V-60 Hearing Aid, 847
GENERAL ELECTRIC Cardioscribe, Model DW, Type 3, 315
GENERAL PRACTICE; Practitioner: See Medicine, practice; Physicians, practicing
GENITALS: See also Genitourinary System; Penis; Vagina
  cancer, betaglucuronidase studies in, [Kadsen & others] *892
  cancer (incurable), testosterone for, [Burger] 1131—ab
  infantile, in boy aged 10, 1224
  large in an infant, 724
GENITOURINARY SYSTEM: See also Genitals; Urinary System
  tuberculosis, paraaminosalicylic acid derivative for, [Debray] 801—ab
  tuberculosis, streptomycin for, Sweden, 1021
  tuberculosis, vitamins therapy, [Stobbaerts] 1040—ab
  vitamin A deficiencies effect, [Youmans] *36
GENIUS: See Great Men
GENTIAN VIOLET: See Methylrosaniline
GERBER'S PRODUCTS
  chopped sweet potatoes, 763
  Ready to Serve Rice Cereal, 1374
GERIATRICS: See Old Age
GERMAN Measles: See Rubella
GERMANY
  medical mission to, by Unitarian Service Committee, 58
  postwar endemic hepatitis in American troops in, [Paul] 797—ab
GERMICIDES: See Sterilization, Bacterial
GERMS: See Bacteria
GESTATION: See Pregnancy
GESTOSIS: See Pregnancy, toxemia of
GEXANE, N.N.R. (description), 548; (Strasenburgh), 548
GIDDINESS: See Vertigo
GIFTS: See Donations (cross reference); Wills
GIMBEL Lecture: See Lectures
GINGIVOSTOMATITIS: See Gums
GLANDERS, [Mendelson] 795—ab
GLANDS: See under names of specific glands
  of Internal Secretion: See Endocrine Glands
GLANDULAR FEVER: See Mononucleosis, Infectious
GLASS
  fabric, clothing of, to protect against heat from fire, [Buettner] *736
GLAUCOMA
  cataracts and, in same patient, 724
  treatment, ACTH, [Blake] 1118—ab
  treatment, belladonna, orally, [Ullman] 67—ab
  treatment, dibenamine, [Bloomfield] 417—ab
GLIOLITE Luminous Infrared Ray Lamps, Models 439, 751, 1151, 1451, 1093
GLIOMA
  of retina in father and child, [Laval] 711—ab
GLIOSIS
  of retina, cause of massive separation, [Heath] *1148
GLOBIN Insulin: See Insulin
GLOBULIN
  gamma, treatment of scarlet fever, [Weinstein] 1405—ab

GLOMERULONEPHRITIS. See Nehritis, glomerular
GLOSSITIS: See Tongue
GLUCAGON
  pancreas hormone (2nd) to control carbohydrate metabolism, [Gaede] 1131—ab; (correction) 1275
GLUCONATE
  trivalent sodium antimony, in schistosomiasis, [Erfan] 877—ab
GLUCOSE See Dextrose
beta-GLUCURONIDASE studies in women: cervical cancer; [Kadson & others] *892
"GLUELIKE" stools, 724
GLYCEMIA: See Blood sugar
GLYCINE See Acid, aminoacetic
GOITER: See also Goiter, Toxic; Hyperthyroidism
  complications: angina pectoris, [Somerville] 876—ab
  nodular, vascular changes in, [Ratzenhofer] 589—ab
  treatment, propylthiouracil, generalized fatal periarteritis from, [McCormick] *1453
  treatment, protein-bound iodine, [Harsha] 956—ab
GOITER, TOXIC
  complications: diabetes mellitus treated with radioactive iodine, [Beidleman] *925
  treatment, combined methyl thiouracil and propyl thiouracil, [Poate] 716—ab
  treatment, methylthiouracil, [Iversen] 1039—ab
  postmenopausal estradiol and dienstrol for, [Cachera] 1523—ab
  treatment, radioactive iodine, results, [Werner] 417—ab
GOLD
  therapy, hepatitis after, [Archer] 782—C
  therapy of rheumatoid arthritis complicated by diabetes 1602
GONADOTROPINS
  chorionic, treatment of rheumatic carditis, [Brewer] 340—ab
  chorionic, treatment of umbilical hernia with undescended testicle in boy of 12, 1418
GONADS See also Ovary; Testis
  hypogonadism, 1602
GONOCOCCUS
  Conjunctivitis. See Conjunctivitis, infectious acute
  Infection See Gonorrhea
GONORRHEA
  arthritis, [Malhotra] 1036—ab
  diagnosis, morning drop for five years, 1018
  Ophthalmia. See Conjunctivitis, infectious acute
  treatment, penicillin, recurrence after, 976
GOODENOUGH Year, Medical Act of 1950, England, 330
GOOD-LITE Portable Visual Acuity Chart, 928
GORGAS, WILLIAM CRAWFORD named to Hall of Fame at New York U., 1272
GORGAS Medal. See Prizes
GORTON'S Strained Codfish for Babies, 763
GOUGEROT-Houwers-Sjogren's Syndrome, [Touraine] 350—ab, [Cooperman] 578—ab
GOUT
  of elbow, 976
  renal changes in, [Brown] 1211—ab
  treatment, ACTH, [Gutman] 786—ab
  treatment, cortisone and ACTH, [Hench & others] *1330
GOVERNMENT: See United States
  Control of Medicine: See Insurance, sickness (compulsory); Medicine, state
  Hospitals: See Hospitals
GRADUATE
  Courses See Education, Medical
  Fellowships See Fellowships
GRADUATES See also Interns and Internships; Residents and Residencies
  Foreign See Physicians, foreign
  in class A and approved medical schools in U S, 1910-1950, *115
  with baccalaureate degrees in medical schools *116
GRAFTS: See Aorta; Bones, Skin, Transplantation (cross reference)
GRAHAM-LITTLE, Sir ERNEST, death, 942
GRAIN. See Rice
GRAND MAL See Epilepsy
GRANTS for Research: See American Medical Association, Fellowships; Foundations; Research, University
GRANULAR Lids: See Trachoma
GRANULOCYTOPENIA: See Agranulocytosis
GRANULOMA
  beryllium granulomatosis, [Gerrie] 579—ab
  beryllium granulomatosis of lung in persons living near plant, [Chesner] 577—ab
  beryllium, of nose, [Kazanjian] 1407—ab
  Coccidoidale: See Coccidioidomycosis
  eosinophilic, of skin, [Lever] 489—ab
  inguinale, and lymphogranuloma venereum, [Kornblith] 70—ab
  inguinale, aureomycin for, [Wammock] 493—ab
GRANULOMA—Continued
  inguinale, streptomycin for, [Pariser] 1119—ab
  Malignum: See Hodgkin's Disease
  of larynx after intratracheal anesthesia, [Wattles] 1122—ab
  Venereum: See Lymphogranuloma, venereal
GRAPEFRUIT juice, Bird's Eye Frozen Concentrated, 847
GRASP
  ergometers to measure strength of [Wainerdi] *619
GRASS
  Bermuda, allergy to, 437
GRATIA ANDRE, death, 1394
GRAVES' Disease: See Goiter, Toxic
GRAVITY: See also Specific Gravity
  negative, effects of acceleration, [Rosenfeld] 1404—ab
GREAT BRITAIN. See British
GREAT MEN
  genius and psychosis; Russell Brain's article in *British Medical Journal*, 692—E
GREEK
  physicians, advanced training for, 472
  physicians in training in anesthesia, 1489
GRIEVANCE Committee: See Societies, Medical
GRIP. See Influenza
  Devil's: See Pleurodynia, Epidemic
  Strength of: See Muscles, tonus
GRISWOLD Fellowship: See Fellowships
GROSS Lecture: See Lectures
GROUP
  Hospital Insurance: See Hospitals, expense insurance
  Practice: See Medicine practice
GROW, MALCOLM C., Gorgas Medal to, 1383
GROWTH
  excessive, in boy aged 6 with functional tumor of adrenal cortex, [Lynch] *921
  of children, effect of alcohol, [Fischer] 347—ab
  retarded, 1535
GRUBER, THOMAS K memorial service in honor of, Michigan, 770
GUILLAIN-BARRE SYNDROME
  clinical picture and problems, [Glanzmann] 1131—ab
GUM
  Arabic: See Acacia
  Tragacanth. See Tragacanth
GUMS. See also Pyorrhea; Teeth
  primary herpetic gingivostomatitis, 1419
GUSBERG special coning biopsy curet for cervix, 726
GYNECOLOGY
  American Board of: See American Board
  postgraduate conference in, televised, Loyola U, 54
  residency training in, 772

H

HES
  treatment of leprosy, [Johansen & Erickson] *989
HETP See Hexaethyl Tetraphosphate
HAIR. See also Scalp
  dyeing, medical aspects, [Thomas] 1520—ab
  excessive, hirsutism, 1140
  excessive, hypertrichosis during streptomycin therapy, [Foró] 878—ab
  Loss of: See Alopecia
  penicillin effects on 811
  permanent wave, neutralizers in home cold waves; danger of poisoning from potassium or sodium bromate, 397—E; (antidotes for) [Brunner] 1283—C
  permanent wave, temporary baldness due to cold wave thioglycolate preparations, [Reiches & Lane] *305
  Q fever in hair processing plant, [Sigel] 263—ab
HAMSTERS
  for culturing tuberculous material, (reply) [Rouff] 1420
HAND: See also Fingers; Nails; Wrist
  grasp, simple ergometers for measuring strength, [Wainerdi] *619
  scaly patches on palms, 976
  shoulder-hand syndrome: reflex sympathetic dystrophy, [Bayles & others] *537
HANDICAPPED See also Blindness, Crippled; Disability, Physical Defects
  corrective exercises for physical defects, 79
  Living with Limitations (film review) 572
  National Employ the Physically Handicapped Week, Oct 1-7, 57
  patients, special car for, New York City, 771
  Rehabilitation. See Rehabilitation
HANSEN'S Disease. See Leprosy
HARTFORD Lectures. See Lectures
HARVARD Lectures See Lectures
HARVEST Mites. See Trombidiosis
HARVEY Lecture: See Lectures
HASHIMOTO Disease: See Thyroid, struma lymphomatosa
HAUSWIRTH Lecture: See Lectures
HAVERHILL Fever: See Erythema, epidemic arthritic
HAY FEVER
  food tests in respiratory allergy, [Leibowitz & others] *990
HEAD: See also Brain; Neck; Scalp
  Bald: See Alopecia
  cancer, tubed pedicle transplant for, [Catlin] 1307—ab
  injuries, spontaneous nystagmus, 285
HEADACHE. See also Migraine
  after spinal anesthesia, [Hunt] 1593—ab
  head pain and, of ocular origin, [Ruedemann] *517
HEALING: See Wounds
HEALTH See also Disease, Sanitation
  agencies, directory of, Calif., 1576
  aid for Indo-China, 58
  A M A Health and Fitness Division, 656
  American Public Health Association, (Commission on Chronic Illness founded in 1949) 466—E; (disapproves compulsory health insurance), 932—E
  aviation health measures unified, Belgium, 1108
  Bills. See Health legislation
  Center: See also Health units; Medical Center
  center, child and maternal, in India, 1195
  center, county, opened South Carolina, 1014
  center, in Philippines, 701
  center, state laws on, (Bureau report), 867
  Child: See Children
  CIO National Health Committee's newspaper advertising against A M A, 933—E
  Council (community) loan kit, Council report, 247
  department, So Much for So Little (film review), 572
  departments (county), Illinois, 1576
  departments (county), 64 in Florida, 853
  departments (county), state laws on, (Bureau report), 867
  Education, A M A Bureau of: See American Medical Association
  Education, National Conference on Cooperation in, 657
  Examination See Physical Examination
  Guardians of Our Country's Health, (film review) 1024
  healthmobiles for rural areas, Ky., 1577
  Industrial. See Industrial Health
  Information Foundation Citizen's Committee, 325
  Insurance: See Insurance, sickness
  International Health Organization. See World Health Organization
  Legislation: See also under other subheads as Health center; Health surveys; Health units
  Laws See Health legislation
  legislation, uniform state health laws (Bureau report), 651; 861
  local leadership in, booklet published in Clinton County, Ohio, 850—E
  Mental: See Mental Hygiene
  minister of, Turkey. Dr. Ekrem Hayri Ustündag, 1392
  Mission: See Medical Missions
  museums, Bureau report, 659
  National Health Council appointment, 855
  National Health Service (England): See National Health Service
  National Institutes of Health (meetings of study sections), 189; (new institutes added), 248; (Dr. Rolla E Dyer retires), 248; (new director: Dr. William H. Sebrell), 472
  of blood donors after repeated donations, [Pulitano] 1523—ab
  officer, does he have status? [Neupert] *1537
  officers, Association of, support A M A. opposition to compulsory sickness insurance, 852
  Organization of United Nations: See World Health Organization
  politics and, unauthorized use of World Wide pictures by Democrats, 930—E
  protection clinic, Mass, 1273
  public, dispute, England, 331
  public, graduate school to open at U. of Pittsburgh, 558
  public, in San Marino, Italy, 256
  public, Kimble Glass Methodology Research Award, 1274
  public, lectures on, held in Spain, 567
  public, program, basic principles for, Colombia, 1199
  public, state fellowships in, New York, *939*
  public, statistician needed, Wash, 1578
  radio series, S Dak, 854
  Resources Office (establishment), 188; 322; *395—E; 692—E*
  Rural: See Rural Communities
  Services: See also Medical Service
  services, survey by U S Congress, 1100
  Supplies: See Medical Supplies
  surveys in industry, multiphasic screening, 648, 1470
  surveys, state laws on, 655
  U. S Department of, A M.A. resolution on, 1485
  U. S Department of Health, Education, and Security: See United States
  USPHS. See also National Institutes of Health *above*

HEALTH—Continued
USPHS (train students from Okinawa and Japan), 53; (course in diagnosis of enteric diseases), 189; (mission to Indo-China), 189; 218; (rotating internships), 100; (fellowships), 400; (medical internships available), 472; (now a part of military services), 172; (to hold examinations for psychologists), 556; (courses in laboratory diagnosis), 769; (needs doctors), 1099; 1101; (examination for scientists), 1190; (research grants), 1187; (Dr. Price appointed assistant surgeon general), 1189; (Association of Reserve Officers) 1575; (Influenza Information Center), 1575
Units: See also Health center
units, [Henderson] *1268
units, local federal bills on, A.M.A. Washington Office report, 638; 1571
West Virginia Citizen's Health Planning Committee, 940
World Health Organization: See World Health Organization
HEARING: See also Ear
conservation program, Mich., 770
Ears that Hear (film review), 335
Loss of: See Deafness
presbyacusia in old age, sex hormone for, [Kroath] 588—ab
streptomycin effect on, [Majer] 503—ab
tests, Malco D-10 Audiometer, 315
tests, Microtone ADC Audiometer, Model 53-C1, 1375
tests, requirements for audiometers for screening purposes (Council report), 465
HEARING AIDS
Beltone Mono-Pac Model M, 929
Cleartone, Model 500 and Regency Model, *103
Gem Model V-60, 847
Malco Quiet-Ear, Models G and H, 1093
Microtone (Model 45), 928; ("Classic," Model T9), 1093
National, Ultrathin Model 504, 1375
National, Vanity Model 506, 1093
Otarion, Models F-1 and F 2, 762
Radioear Model 62 Starlet, 929
Silvertone Model M-35, 1181
Silvertone, Model P-15, 1375
Solo-Pak Model 99, 315
Sonotone Model 925, 315
Telex, Model 200, 103
HEART: See also Arteries, coronary; Cardiovascular System
action, disturbances in, during catheterization, [Landtman] 1037—ab
Angiocardiography: See Heart roentgen study
Anomalies: See also Ductus Arteriosus, patent; Heart disease, congenital
anomalies, arterial grafts in, [Soullé] 963—ab
anomalies, cerebral abscess syndrome, [Arana Iniguez] 427—ab
anomalies, congenital dextrocardia, [Donzelot] 962—ab
anomalies, congenital pulmonary stenosis with intact ventricular septum; valvulotomy for, [Potts & others] *8
anomalies, cor triloculare biatrium [Shechter & Greenspan] *100
anomalies, malformation without cyanosis in mother and child, [Giraud] 965—ab
anomalies, persistent truncus arteriosus, [Moragues] 1508—ab
anomalies, roentgen appearance of interatrial septal defect, [Healey] 68—ab
anomalies, tetralogy of Fallot, surgery for, [Glover & others] *1019
arrest relieved by procaine, [Rouallc] 1519 ab
arrest (6 minutes), complete recovery after, [Wolff] *738
auricle (right), puncture and aspiration in air embolism, [Hummel] 73—ab
Auricular Fibrillation: See Auricular Fibrillation
block, P-R beyond 0 24 second, 1016
catheterization, disturbances of heart action during, [Landtman] 1037—ab
Chicago Heart Association changes address, 1576
Decompensation: See Heart disease
Disease: See also Cardiovascular Disease; Endocarditis; Pericarditis
disease, ACTH for keratitis in diabetic with, [Mazar & Bogdasarian] *1369
disease, air travel and cardiac patient, [May] 1402—ab
disease and rheumatoid arthritis, [Bradfield] 578—ab
disease (decompensated), ligate inferior vena cava in, [Donzelot] 965—ab
disease dicumarol therapy, [Bruins Slot] 74—ab
disease discovered by mass radiography, Norway, 1108
disease, effects of metallic ions and osmotic disturbances on (film review), 950
disease, energy expended by patients on bedpan and commode, [Benton & others] *1443
disease (functional and organic), dihydroergocornine to differentiate, [Pordy] 343—ab
disease, grants for research (Chicago), 557; (Tenn.), 558; (Mich.), 853
Disease, Hypertensive: *See Blood Pressure,* High
disease, inject procaine into sympathetic ganglions, [Braeucker] 709—ab
disease, intravenous ether contraindicated, 725
disease, miniature radiography to detect, [Mathisen] 262—ab
disease, procaine as cardiac drug, [Oury] 350—ab
disease (rheumatic), mural cardiac thrombi in, [Askey & Cherry] *97
disease (rheumatic), quadruple action vaccine in, [Gaggini] 127—ab
disturbances and distended viscera, 512
electrocardiogram, [Smith] 201—C
electrocardiogram, changes in anxiety neuroses, [Rørvik] 879—ab
electrocardiogram in nonspecific benign pericarditis, [Porter & others] *749
electrocardiogram in pheochromocytoma, [Kositchek & Rabwin] *826
electrocardiogram (precordial), derived from V and CF leads, [Kistin] 1511—ab
electrocardiograms and RS-T depression, [Master] 860—C
electrocardiograph, General Electric Cardioscribe, Model DW, Type 3, 315
electrocardiographic abnormalities in dystrophia myotonica, [DeWind & Jones] *299
Enlargement: See Heart hypertrophy
exhibit, Chicago Heart Association builds, 471
Failure: See Heart insufficiency
fellowships in cardiology, (Louisiana) 55; (National Heart Institute), 556
heart-lung preparation, (film review) 202
hemorrhage from, convert auricular appendage into leakproof valve tube to prevent, [Thompson] *1056
hypertrophy; acute cor pulmonale, [Mack] 272—ab
hypertrophy (idiopathic) relation to fetal endocarditis, [Glynn] 715—ab
Infarction: See Myocardium infarction
inflammation, response to ACTH, [Massell] 205—ab; [Massell & Warren] *1335
inflammation (rheumatic active) in those over 40, [Wroblewski] 1402—ab
inflammation (rheumatic), chorionic gonado*tropins, estrogens and progesterone for,* [Brewer] 310—ab
inflammation (rheumatic), oxygen therapy, [Taran] 711—ab
inflammation (rheumatic pancarditis), cortisone in, [Bell] 951—ab
insufficiency, congestive failure in carbon tetrachloride nephrosis, [Friedberg] 1025—ab
insufficiency, liver function in failure, [Branwood] 71—ab
insufficiency, low salt diet in, [Nielsen] 74—ab
insufficiency, salt depletion and mercury poisoning, danger in treating failure, [Sanderson] 586—ab
interventricular septum, acquired defect, [Ungar] 317—ab
mechanical heart and lung, [Stokes] 1033—ab
murmur (systolic) and thrill from external rupture of heart, [Bishop] *757
Muscle: See Myocardium
National Heart Institute (fellowship program), 556; (teaching grants), 936
Output: See Blood circulation; Blood volume
Pain: See Angina Pectoris
pediatric cardiology, fellowships in, Chicago, 1272
Rate: See Tachycardia
Rhythm: See Arrhythmia
roentgen study, angiocardiography, [Castellanos] 272—ab
roentgen study, angiocardiography in diagnosis of transposed great vessels, [Castellanos] 1026—ab
roentgen study, angiocardiography in operability of lung cancer, [Dotter] 1026—ab
roentgen study, angiocardiography, rapidly *increasing value, [Wegelius] 1039—ab*
rupture, auscultatory evidence, [Nuzum] 415—ab
rupture (external) causing systolic murmur and thrill, [Bishop] *757
rupture of interventricular septum in myocardial infarction, [Nareff] 1516—ab
Size: See also Heart hypertrophy
size, teleroentgenograms in nonspecific pericarditis, [Porter & others] *752
sound (normal) causing unnecessary rejection for military service, [Solis-Cohen] 1022—C
sounds, dorsal auscultation in, [Lian] 718—ab
surgery, convert auricular appendage into leakproof valve tube, [Thompson] *1057
surgery, ligate auricular appendage for recurrent embolization, [Baronofsky] 424—ab
surgery of stenotic valvular disease, [Glover & others] *1049
surgery, valvulotomy for congenital pulmonary stenosis with intact ventricular septum, [Potts & others] *8
surgery, valvulotomy for mitral valve stenosis, [Baker] 425—ab
HEART—Continued
surgical exposure in cardiac resuscitation, [Wolff] *742
tumors (primary), diagnosis, [Coulter] 1033—ab
Valves: See Aortic Valve; Heart surgery; Mitral Valve; Pulmonary Valve; Tricuspid Valve
ventricle (right) puncture during venous air embolism, [Frey] 1130—ab
World Congress of Cardiology held in Paris, 699
HEAT: See also Burns; Diathermy; Fever; Fire; Tropics
extreme, effect on man, [Buettner] *732
Therapeutic Use: See also Diathermy; Infra-Red Rays
therapeutic use: Moistaire Model 420 6, 762
therapeutic use: Westinghouse Infra-Red Lamps, R-40, 762
HEINZ Strained Vegetables and Beef, 549
HELIUM
oxygen mixtures, administration in inhalational therapy, *31
HEMAGGLUTINS: See Agglutinins, cold; Blood groups
HEMANGIOMA
congenitale: nevus flammeus, treatment, 1602
HEMATEMESIS
treatment, 197
HEMATOLOGY: See Blood
Research Foundation: See Foundations
HEMATOMA, Subdural: See Meninges
HEMIPLEGIA
complicating dissecting aneurysm of aorta, [Moersch & Sayre] *1141
etiology: pertussis immunization, [Grace] 1121—ab
HEMIHYPERTROPHY, 1225
HEMOGLOBIN: See also Methemoglobin; Methemoglobinemia
origin of bile pigments, 1098—E
values in adolescent workers, Brazil, 1500
HEMOGLOBINURIA
paroxysmal nocturnal, [Crosby] 1404—ab
HEMOIMMUNIZATION: See Immunization
HEMOLYSIS: See Anemia, hemolytic
Disease in Newborn: See Erythroblastosis, Fetal
HEMOPHILIA
simulating acute abdominal conditions, [Shelton] 1212—ab
HEMOPOIESIS: See Blood formation
HEMORRHAGE: See also Hemophilia; under names of diseases and organs affected
bleeding disease in a man, probable causes; treatment, 212
coronary insufficiency due to, [Master] 491—ab
delayed, in rupture of spleen, [Dobson] 1034—ab
etiology: anticoagulants, 1466—E
etiology: prolonged use of sodium salicylate, 812
Intra-abdominal: See Abdomen hemorrhage
Menstrual: See Menstruation
quantitative aspects, [Rudman] 1308—ab
Subarachnoid: See Meninges
Subdural: See Meninges
syndrome, heparin tolerance: modified Waugh-Ruddick test, [Soulier] 1525—ab
syndrome of acute leukemias, [Tzanck] 1524—ab
tendency to, relation to climate 597
Thrombopenic: See Purpura, thrombopenic
treatment, intra-arterial transfusion in hemorrhagic emergencies, [Ciliberti & Dickler] *382
HEMOTHERAPY: See also Blood Transfusion
artificially induced subcutaneous nodules with blood in rheumatic fever, [Massell] 422—ab
injection of whole blood into infants, 437; (reply: danger of serum jaundice) [Troy] 1602
subcutaneous, late sequels [Lacomme] 588—ab
HEMOTHORAX
traumatic, final results, [Ogilvie] 500—ab
HENCH, PHILIP S., *awarded Nobel Prize, 849*—E
HENDERSON, ELMER L.
President's address at A M A. Cleveland Session, 1268; 1469
President's page, 317—E; (Sept) 319; (Oct.) 553; 767; (Nov.) 933; (Dec.) 1186; (New Year's message) 1570
HENOCH-Schonlein Purpura: See Purpura
HEPARIN
anticancer polysaccharides, 932—E
hemorrhage due to, 1466—E
sodium, potency, (Council report) 1464
tolerance, in vitro test: modified Waugh-Rudick test, [Soulier] 1525—ab
treatment of acute coronary insufficiency, [Nichol] 583—ab
treatment of recent phlebitis, [Olivier] 964—ab
treatment to prevent gangrene after frostbite, [Lange] 345—ab
HEPATIC: See Liver
HEPATITIS: See Liver inflammation
HERMAPHRODITISM
general practitioner as urologist, [Hess & others] *601

HERNIA: See also Spine, intervertebral disk
  diaphragmatic (hiatus) from sliding hernia of stomach into thoracic cavity, [Simmons] 871—ab
  diaphragmatic, in woman aged 64, non-surgical treatment, 512
  diaphragmatic, how often does it cause esophageal varices? 810
  diaphragmatic strangulated, complicating delivery, [Pearson & others] *22
  inguinal, sliding hernia of ovary, [Beck] *462
  umbilical, with undescended testicle in boy of 12, 1418
HEROES
  War See Korean War, Heroes; World War II, Heroes
HERPES
  simplex, complement fixation test for, [Dudgeon] 1128—ab
  simplex corneae, aureomycin for, [Thygeson] 576—ab
  simplex, ulcers in mouth and throat 1419
  zoster of eye, aureomycin for, 1583
HESS Committee report, 648, (Bureau report), 653
  Lecture See Lectures
HEXAETHYL TETRAPHOSPHATE (HETP)
  pharmacology and toxicology, [Rohwer & Haller] *104, [Grob] 607—ab
HEXAMETHONIUM
  bromide treatment of severe hypertension, [Campbell] 1592—ab
HEXAMETHYLENAMINE See Methenamine
HIGH Blood Pressure See Blood Pressure, High
  Frequency Apparatus See Diathermy
HIGHWAY Accidents See Automobile accidents
HILL-Burton Act See Hospitals, building program
HIP See also Thigh
  deformity, poliomyelitic, and erector spinae transplant, [Barr] *813
  lift-prone pressure hip roll-prone pressure methods of artificial respiration, [Gordon & others] *1447, (Council report) *1455
HIRSCHSPRUNG'S Disease. See Colon, megacolon
HIRSUTISM See Hair, excessive
HISTAMINE
  Antihistamines: See also Diphenhydramine Hydrochloride
  antihistamines plus penicillin, in glomerulonephritis in children, [Baffi] 1131—ab
  antihistamines, impotence after, [Jennes] 577—ab
  antihistamines treatment of colds, [Bloomfield] *291, 565
  antihistamines treatment of leprosy, [Johansen & Erickson] *989
  antihistamines treatment of parkinsonism, [Effron & Denker] *5
  antihistamines treatment of respiratory diseases, failures, [Feller] 268—ab
  in beeswax, gastric ulcers induced by, [Olovson] 493—ab
  intra-arterial, for peripheral arterial disease [Swann] 583—ab
  test (intravenous) in pheochromocytoma, [Kositchek & Rabwin] *826
  treatment, use after fenestration operation, [Shambaugh] 265—ab
HISTOLOGY See Cells; Tissues
HISTOPLASMIN
  reactors in lung calcification, [Furcolow] 582—ab, [Prior] 1127—ab
HISTOPLASMOSIS
  diagnosis, bone marrow in, [Pratt] 264—ab
  disseminated, [Parrillo] *747
  generalized, in infants and children, [Klingberg] 343—ab
  in infants, [Kotcher] 1515—ab
HISTORY of Medicine See Medicine, history
HIVES See Urticaria
HODGKIN'S DISEASE
  complicating pregnancy, [Bichel] 1215—ab
  primary, of lung, [Yardumian] 871—ab
  treatment, 903—ab
  treatment, ACTH, [Pearson & Eliel] *1351
  treatment, ACTH and cortisone, [Spies] 269—ab, [Taylor & others] *1061
  virus, 764—E
HOGS: See also Trichinosis
  rheumatoid disease in effect of cortisone and ACTH, [Doyle] 793—ab
HOME
  Accidents See Accidents, home
  care for prolonged illness, [Shindell] 70—ab
  Whirlpool Aerator (for whirlpool bath), 1093
HOMEOSTASIS and adrenal cortex, 1006—E
HOMICIDE See Murder
HOMOSEXUALITY
  not hereditary, 1536
HONEY
  solution with procaine in treatment of hypertension, [Beckmann] 428—ab
HOOVER, J E, Let's keep America healthy: fight against communism, 1094—E
HORMONES See Endocrine Glands, under names of specific glands as Adrenals
  Sex See Androgens, Estrogenic Substances, Gonadotropins, Sex hormones
  Steroid. See Steroid hormones
  studies in peptic ulcer, [Sandweiss & others] *1436
HORSE RADISH
  peroxidase of, Theorell discusses, 1020
HORSES
  glanders, [Mendelson] 795—ab
HOSPITALIZATION INSURANCE See Hospitals, expense insurance; Medical Service Plans
HOSPITALS See also Clinics; Medicolegal Abstracts at end of letter M
  American Hospital Association, (inspection of hospitals by) 394—E, [Rigterink] 1110—C; (Commission on Chronic Illness founded in 1949) 466—E; (standardization program) 695
  A M A Council on: See American Medical Association, Council on Medical Education and Hospitals
  A M A. resolutions on competition with practice of medicine, 1482
  Approved. See Hospitals, registered
  Army, at newly opened camps, Commanding Officers of, 189—OS
  Army, cortisone and ACTH for, 471
  Army, reopening of, 470
  Barnard Hospital Lecture: See Lectures
  beds, estimate, 556
  beds for the aged, Copenhagen, 778
  beds for armed forces authority of new Armed Services Medical Regulating Office, 1009
  Bingham Memorial, Idaho, 219
  Blue Cross Plans: See Hospitals expense insurance
  building program under Hill-Burton Survey and Construction Act, 53; 320; (Bureau report) 868 936; [Cohen] 948—C; 1012
  Cancer: See Cancer
  Care See Hospitals service
  Chambersburg, dedicated, Pa, 250
  Children's Hospital of Boston booklet: "Accident Handbook" for use in home, 1007—E
  children's in Bolivia, 912
  city hospital board, N Y, 56
  city hospital in St Petersburg, 190
  convalescent, for crippled children, Ky., 54
  Cook County, new interns and residents building, Illinois, 474
  department of general practice in, American Academy of General Practice manual on, 766—E
  epidemiologists in, [Felsen] 65—C; [Brahdy] 783—C
  Expense Insurance: See also Insurance, sickness, Medical Service Plans
  expense insurance, 655
  expense insurance, Blue Cross and Blue Shield, actuarial progress by, 1261—E
  expense insurance, Blue Cross etc, costs of hospitalized acute illness, [Wiprud & Altman] *835, (correction) 1195
  expense insurance, Blue Cross subscription paid with rent, 1385
  expense insurance, Blue Cross, 1950 revision of "Voluntary Prepayment Medical Care Plans," 317—E
  expense insurance, Blue Cross, who protects it? [Howley] 1121—ab
  expense insurance, state laws on, (Bureau report) 866
  Facilities: See Hospitals, service
  Food Service Personnel Training, (film review) 202
  Government: See Hospitals, Army; Hospitals, Marine, Hospitals, veterans
  Grant, affiliates with U. of Illinois, Chicago, 1191
  inspection by American College of Surgeons, 932—E
  inspection by A M A, 666
  inspection by hospitals; resolution adopted by American Hospital Association, 394—E, (Kalamazoo Academy of Medicine endorses editorial in J A M A), [Rigterink] 1110—C
  inspection; standardization program by American Hospital Association, 695
  Insurance See Hospitals, expense insurance
  Interns. Internships: See Interns and Internships
  James Ewing, dedicated, N Y, 324
  Lawrence County Memorial, dedicated, Illinois, 54
  Marine, rotating internships, 400
  Medical Service Plans: See Hospitals, expense insurance
  Military. See Hospitals, Army, Hospitals, Marine
  Montefiore, Dr Cherkasky to direct; Dr Bluestone retires, New York City, 1491
  Mountainside, and New York Medical Center affiliate, 1578
  Municipal See Hospitals, city
  music in, [Pickrell] 1407—ab
  National Cancer Hospital of America, temporary injunction to prevent disposal of funds, 1577
  Neuropsychiatric See Hospitals, psychiatric
  Nurses, Nursing: See Nurses and Nursing
  physicians, (general practitioners), British Medical Ass'n discusses, 63, 1279
  physicians *(general practitioners) in, 766—E*
  Pioneers Memorial, California, 1190
  planning, Denmark, 482
HOSPITALS—Continued
  plans in Civil Defense, N Y, 1014
  practice (general) in, American Academy manual on, 766—E
  practice of medicine by, (West Virginia), 191; (A M A resolution on) 1482
  Pratt, opens, Kansas, 697
  Presbyterian, school of nursing, Chicago, 1490
  Psychiatric See also Hospitals, state
  psychiatric, City of the Sick (film review), 572
  psychiatric, Mental Hospital Institute, Oct 16-19, St Louis, 251
  psychiatric, model law for admitting patients, 245
  psychiatric, new, Ky., 1577
  Record See Medical Record Librarians
  registered by A M A, additions to list, 1587
  registered by Conference Committee on Graduate Training in Surgery by A M A and A C S, 1503
  Residents; Residencies: See Residents and Residencies
  rural, X-ray facsimile and television diagnostic services for, [Cohen] 948—C
  Rush Memorial Hospital, Indiana, dedicated 249
  St Francis, Peoria, affiliates with U of Illinois on residency program, 1013
  St Luke's, expansion program, Chicago, 557
  service activities of section of A M A Council on, 664
  service facilities expanded, N Y C, 403
  ship for Korea from Denmark, 1583
  staff employees begin 40 hour week, Philadelphia, 1104
  staff, trained for giving inhalational therapy, *34
  standardization program, [Henderson] *1268; (Board of Trustees report) 1472, (A M A resolution on) 1480, 1484
  state, committee report on, New Mexico, 191
  state laws on (Bureau report) 654, 863
  Survey and Construction Act See Hospitals, building program
  Swedish field hospital to Korea, 257
  treatment (early) for epilepsy, Denmark, 778
  Tuberculosis See Tuberculosis hospitals
  veterans, A M A resolutions on care of non-service connected disabilities, 1484
  veterans, criticize hospitalization for non-service-connected cases, [Kraabel] 569—C
  veterans, new (12), 473
  veterans to care for wounded, 1099
  what they can do to obtain equitable distribution of physicians, 670
HUMIDITY
  Croupette Humidity and Oxygen Tent, 103
  Midwest all-Metal Humidifier, Model 100, 103
HUNGER See also Air hunger, Fasting
  hyperglycemia, cause of diabetes, [Wilder] *1236
HUNTERIAN SOCIETY
  use of experience, address by Sir Heneage Ogilvie 1264—E
HUTCHINGS Memorial Lecture. See Lectures
HYALURONIDASE
  treatment plus penicillin in bacterial endocarditis, [Moseley] 958—ab
HYDATID DISEASE See Echinococcosis
HYDATIDIFORM Mole See Placenta tumors
HYDERGIN
  treatment of peripheral circulation, [Eichler] 1038—ab
HYDROPHOBIA: See Rabies
HYDROPS Fetalis: See Erythroblastosis, Fetal
HYDROTHERAPY: See Baths
HYDROXYAMPHETAMINE (paredrine)
  hydrobromide, N N R, (Smith, Kline and French), 314
HYDROXYCOUMARIN, Methylene bis: See Dicumarol
HYFLAVIN, methylol riboflavin N N R, (description) 624, (Endo) 624
HYGEIA (Today's Health) See American Medical Association
HYGIENE: See Health, Sanitation
  Industrial. See Industrial Hygiene
  Mental See Mental Hygiene
HYPERCALCEMIA: See Blood calcium
HYPEREMIA
  Bier's passive, in hematogenous osteomyelitis, [Marinaccio] 429—ab
HYPERGLOBULINEMIA See Blood proteins
HYPERGLYCEMIA See Blood sugar
HYPERPARATHYROIDISM. See Parathyroid
HYPERPYREXIA See Fever, therapeutic
HYPERSENSITIVITY: See Allergy
HYPERSPLENISM: See Spleen
HYPERTENSIN
  isolated from blood of dogs in artificial kidney, [Kahn] 1513—ab
HYPERTENSION See Blood Pressure, High
HYPERTHYROIDISM. See also Goiter
  complicating pregnancy, thiouracil drugs for [Bell] *1243
  exophthalmos and, [Anderssen] 272—ab
  treatment, choline, [degli Esposti] 274—ab
  treatment, thiouracil, exophthalmos from, [Maranon] 1594—ab
HYPERTRICHOSIS See Hair, excessive
HYPERTROPHY: See also Heart
  hemihypertrophy, 1225

HYPERVITAMINOSIS: See Vitamins A; Vitamins D
HYPNOTICS
state laws on, (Bureau report) 862
[illegible]
view), 335
ilm review), 335
See Injections
ids
y
Blood proteins
See Blood prothrombin
HYPOSENSITIZATION: See Allergy
HYPOTASSEMIA: See Blood potassium
HYPOTENSION: See Blood Pressure, low
HYPOTHYROIDISM
effect on reproduction, [Krohn] 1211—ab
mentrual bleeding in, [Deisher] 1213—ab
HYPOVITAMINOSIS: See Vitamins deficiency
HYPOXEMIA: See Blood oxygen
HYPOXIA: See Oxygen deficiency
HYSTERECTOMY: See Uterus

I

I B M section of A M.A. bureau, 660
ICELAND
epidemic simulating poliomyelitis, [Sigurdsson] 1508—ab
ICTERUS: See Jaundice
Gravis: See Liver, atrophy, acute yellow
IDIOSYNCRASY: See Allergy
ILEITIS
regional, nutritional problems after resecting small intestine for, [Kiefer & Arnold] *903
regional (Crohn's disease), roentgenography in, Spain, 1499
ILEOSTOMY
stoma, abdominal wall flaps for grafting, [Pickrell] 423—ab
ILEUM
cancer, [Pridgen] 269—ab
ILLEGAL Practitioners: See Quacks
ILLINOIS: See Chicago
ILLNESS: See Disease
ILLUSTRIOUS Men: See Great Men
IMMIGRANTS: See also Refugees
dracunculosis in, from Yemen, 1281
Physicians: See Physicians, foreign
vaccinated for smallpox, [Maguire] 707—C
IMMUNE
serum treatment for whooping cough, [Willemijns] 797—ab
IMMUNITY: See also Antibodies; Antigens: under names of specific diseases
milk-borne, against certain virus diseases, 1379—E
IMMUNIZATION: See also Vaccination; under specific diseases as Diphtheria
BCG: See Tuberculosis Immunization
hemoimmunization, injection of whole blood into infants, 437; (reply: danger of transmitting serum jaundice) [Troy] 1602
in older persons, 1420
infected by syringes used for mass inoculation, [Evans] 877—ab
poliomyelitis following, 240—E; [Leake] 259—C; [Hill; MacCallum] 585—ab; [Banks] 959—ab
primipara immunized by previous intramuscular injection of Rh (D) blood, [Sharnoff & Jasper] *845
IMMUNOLOGY
International Society of Haematology discusses, London, 1197
IMPOTENCE
antihistamine treatment followed by, [Jennes] 577—ab
diagnosis by family physician, [Hess & others] *601
IMPREGNATION: See also Coitus; Pregnancy
artificial, plea for standardizing donors, [Russell] *461
Preventing: See Contraception
INANITION: See Nutrition deficiency
INCLUSION Phenomenon: See Cells
INCOME
family, costs of hospitalized acute illness, [Wiprud & Altman] *835
Tax: See Tax, income
INDELIBLE PENCILS
cause of eye injuries, [Passow] 428—ab
INDEX MEDICUS: See American Medical Association, Quarterly Cumulative Index Medicus
INDIA
child and maternal health center in, 1195
INDIANS, AMERICAN
physical examination, 1012
service, physician promoted: Dr. Edward J. Johnson, 1012
INDIGENT: See Medically Indigent
INDIGESTION
in tuberculous patients, [Madsen] 800—ab
INDO-CHINA
health aid for, 58
mission to, by USPHS, 189—OS
INDONESIA, aid to, 556
INDUSTRIAL ACCIDENTS: See also Workmen's Compensation
Committee on Labor-Management Cooperation for Safety; principles accepted by President's Conference, 1008—E
INDUSTRIAL DERMATOSES
cinnamon, [Epstein] 702—ab
INDUSTRIAL DISEASES: See also Industrial Dermatoses
aluminum oxide, lung disorder after exposure to, [Schwell] 273—ab
berylliosis, [Nachtwey] 1210—ab
beryllium plant, chronic lung granulomatosis in persons living near, [Chesner] 577—ab
brucellosis, [Herrell & Barber] *510
carbon monoxide exposure, 975
chemicals in the atmosphere, 809
chemicals used in tanning leather and in shoe polish, 1535
coppersmith, symptoms in, 597
exhaustion in young business executive, [Portis & others] *1162
fluoride poisoning in reducing aluminum ore, 1323
homologous serum jaundice in embalmer (case 8), [Runyan & others] *1067
iodoacetic acid, irritant action, [Flesch] 1110—C
lead poisoning hazard 1223
leukemia in radiologists, [March] 1302—ab
phosphorus insecticides, [Abrams & others] *107
photofluorographic personnel, protection from excessive radiation, [Van Allen] 793—ab
Pneumonoconiosis: See Pneumonoconiosis
pretoxicosis test, Paris, 256
Q fever epidemic in workshop of Swiss railroads, [Bracher] 502—ab
Q fever in wool and hair processing plant, [Sigel] 263—ab
radiation injury in radiologic work, [Hultberg] 961—ab
radioactive static eliminators, hazard, [Silson] 1509—ab
rubber manufacturing and cancer, 597
Silicosis: See Pneumonoconiosis
spine disorders from truck and tractor driving, [Fishbein] 1208—ab
stannic oxide pneumoconiosis, [Dundon] 416—ab
state laws on, (Bureau report) 866
toxicity to latex, 809
zinc poisoning hazard, 1223
INDUSTRIAL HAZARD: See Industrial Diseases
INDUSTRIAL HEALTH: See also Industrial Hygiene
A.M.A. Council on Industrial Health: See American Medical Association
A.M.A. Section on Medicine in Industry not to be established, 667
conference, (regional) 192
Congress of Occupational Medicine (33rd),
cooperation of physicians, Belgium, 567
in England, Council's report, 619
Institute established by General Motors, 1577
Italian Congress of Occupational Medicine (correction), 326
mass health surveys; multiphasic screening, (Council report), 618
Medical Aspects of Civil Defense, 648
medicine, fellowships in, Ohio, 939
nursing, Council Report, 649
physical examination of employees and preemployment, state laws on, (Bureau report) 862
INDUSTRIAL HYGIENE
Foundation head: Dr. C. Richard Walmer, 1578
INDUSTRIAL INJURIES: See Industrial Accidents
INDUSTRIAL POISONING: See Industrial Dermatoses; Industrial Diseases
INDUSTRIAL TRADE UNIONS
CIO National Health Committee's newspaper advertising against A.M.A., 933—E
gift to Medical Center, New York City, 854
socialized medicine is no bargain, [Hutcheson] *1269; [Henderson] *1570
INEBRIETY: See Alcoholism
INERTIA, Pernicious: See Fatigue
INFANTILE PARALYSIS: See Poliomyelitis
INFANTILISM, Intestinal: See Celiac Disease
INFANTS: See also Children; Infants, Newborn; Pediatrics; under names of specific diseases
adrenal insufficiency in, [Geppert] 713—ab
asthma from allergy to tobacco smoke, [Rosen & Levy] *620
deafness in, 1046
diabetes in 5 month old, [Staffieri] 1131—ab
eyes, discharge from, 79
feeding, antibiotics excreted in breast milk harmful? 1324
feeding, Beech-Nut Strained Products, (Oatmeal), 763
feeding: Bib Brand Orange Juice for Babies, 847
feeding, Birds Eye Frozen Concentrated grapefruit juice and orange juice, 847
feeding, Clapp's Baby Foods, 393; 1374
feeding, Die-Delight Brand Royal Anne Cherries, 847
feeding, Gerber's (Junior Chopped Sweet Potatoes) 763; (Ready to Serve Rice Cereal) 1374
feeding, Gorton's Strained Codfish for Babies, 763
feeding, Heinz Strained Vegetables and Beef, 549
INFANTS—Continued
feeding, Libby's Junior Foods, 763; 847
feeding, Swift's Liver and Bacon, 763
genitals large in, 724
histoplasmosis in, [Kotcher] 1515—ab
Human Beginnings (film review), 1507
injection of whole blood into, 437; (reply: danger of transmitting serum jaundice) [Troy] 1602
lacrimal drainage, poor in, 1140
malaria (congenital), [Jones] 1035—ab
mortality committee program, N. Y., 1103
mortality, cost experience with premature infants in 1948, [Herbolsheimer] *542
mortality, deaths caused by chemical bottle cleaner, 1576
mortality, deaths from nitrates in well water, Minn., 1577
premature, congenital anomalies, [Ingalls] 874—ab
premature, mortality and cost experience, 1948, [Herbolsheimer] *512
premature, response to oxygen enriched atmosphere, [Graham] 792—ab
premature, retrolental fibroplasia as syndrome, [Ingalls] 874—ab; [Heath] 953—ab; 1578
premature, Society of Nepiology first scientific meeting, Italy, 701
rectal temperature (normal), 1418
retina massive separation in full term infants, [Heath] *1118
Test-Tube: See Impregnation, artificial
toxoplasmosis in, [Walenz] 1409—ab
tumors, new growths in breasts, 1535
vaccination unsuccessful in 15 month old child, 1048
virus hepatitis fatal in 5 month old, [Lipman] *1090
vision: when does an infant see? 510
Weight: See also Infants, Newborn, weight
weight, gain in nursling, effect of vitamin E on, [Schmidt] 347—ab
INFANTS, NEWBORN: See also Fetus; Placenta
Asphyxia in: See Asphyxia neonatorum
Birth Process: See Labor
diarrhea (epidemic) in, [Vignec] 336—ab
Erythroblastosis: See Erythroblastosis, Fetal
neurological lesions in, [Keith] 1406—ab
Ophthalmia in: See Conjunctivitis, infectious acute
otitis media in, [Esch] 348—ab
pemphigus, [Miller] 796—ab
perceptive deafness and jaundice in, [Gerrard] 1310—ab
poliomyelitis in, [Baskin] 575—ab
resuscitation, 360
subdural hematomas and effusions, [Jackson] 274—ab
thymus death in, [Mink] 274—ab
tracheo-bronchial aspiration in, safe method, [Emerson] *613
vitamin D in, optimum dose, Paris, 1019
weight at birth and undernutrition of mother, [Dean] 272—ab
weight, survival of 16 oz. baby, England, 410
INFARCTION: See Myocardium
INFECTION: See also Immunity; Staphylococcus; Streptococcus; under specific organs and regions
by syringes used for mass inoculation, [Evans] 877—ab
chronic or repeated, bacteriologic environment in, [Prigal] 1585—C
of Blood: See Bacteremia
Prevention: See Sterilization, Bacterial
INFECTIOUS DISEASE: See also Communicable Diseases; Epidemics
contagious diseases in Turkey, 411
Preventing: See Immunization; Vaccination
INFECTIOUS HEPATITIS: See Liver, inflammation
INFECTIOUS MONONUCLEOSIS: See Mononucleosis, Infectious
INFERTILITY: See Sterility
INFINITY, 1353—ab
INFLAMMATION: See under names of specific diseases and organs as Bladder; Heart; Ileitis; Pancreas; Phlebitis; Stomach; Tongue; etc.
INFLUENZA
epidemic, Turkey, 1392
Information Center, 1575
lectures on, Italy, 704
of Parrots: See *Psittacosis*
pneumonia, atypical, [Marie] 965—ab
treatment, aureomycin, controlled study, [Thalmann & others] *1156
treatment, streptomycin or dihydrostreptomycin and sulfadiazine, 512
vaccine, possibility of sensitizing patient to, 512
INFRA-RED RAYS
Ghiolite Luminous Lamps, Models 439, 751, 1151, 1451—1093
Westinghouse R-40 Lamps, 762
INFUSIONS: See Injections
INHALATION: See also Aerosols; Anesthesia; under names of specific substances as Diethylstilbestrol; Oxygen
drugs, administered by, *32
of Dust: See Pneumonoconiosis
therapy, standards of effective administration; New York Academy report, *25

INJECTIONS: See also under names of specific substances
  combined, of penicillin and tetanus toxoid and tetanus antitoxin, 1225
  device developed by the Army in Korea, 1572
  hypodermic, poliomyelitis following, 240—E; [Leake] 259—C, [Hill; MacCallum] 585—ab, [Banks] 959—ab
  intra-arterial transfusions in hemorrhagic emergencies, [Ciliberti and Dickler] *382
  Intraspinal See Anesthesia, spinal
  Intravenous See Blood Transfusion
  subconjunctival, of cortisone in iritis, [Koff & others] *1259
INJUNCTIONS See Medicolegal Abstracts at end of letter M
INJURIES See Accident, Burns; Fractures; Trauma, Wounds, under specific organs or regions as Eyes, Medicolegal Abstracts at end of letter M
  Industrial See Industrial Accidents
  War See Korean War
INOCULATION. See Immunization
INSANE ASYLUMS See Hospitals, psychiatric
INSANITY. See Dementia Precox, Mental Disorders, Medicolegal Abstracts at end of letter M
INSECTICIDES
  phosphate, toxic action, [Abrams] 1028—ab
  phosphorus, danger from chemicals in foods, 849—E
  phosphorus pharmacology; toxicology [Rohwer & Haller] *104
INSECTS See Cockroaches, Fleas, Mosquitoes
  Larva See Myiasis
INSEMINATION See Impregnation, artificial
  Preventing See Contraception
INSTITUTE
  of Industrial Health established by General Motors 1577
INSTITUTIONS See Hospitals, Schools, Schools Medical
INSTRUCTION See Education; Education, Medical Schools, University
INSTRUMENTS See also Apparatus, Hearing Aids, Medical Supplies, Syringe
  aspirating, for use on newborn, [Emerson] *613
  ergometers for measuring strength of hand grasp (grip), [Wainerdi] 619
INSULIN See also Medicolegal Abstracts at end of letter M
  absorption rate 888
  assay of small quantities, [Bornstein] 584—ab
  coma amobarbital sodium as causative factor, [White] 1209—ab
  concentration in man, [Bornstein] 584—ab
  globin vs protamine modification, time action of [Colwell] 871—ab
  phosphate levels in blood plasma reduced by, 1391
  requirement, relation to dosage of adrenal cortex extract [Green & others] *442
  shock dose differences in various constitutional types, [Winkler] 1522—ab
  shock therapy, [Palmer] 337—ab
  tolerance tests in 3 constitutional types, [Winkler] 1522—ab
  Treatment. See also Diabetes Mellitus, insulin in
  treatment, peroral, [Lasch] 503—ab
  treatment of progressive muscular dystrophy, [Mayerhofer] 1037—ab
  treatment, subshock doses in electric shock treatments, 1139
INSURANCE See also Workmen's Compensation, Medicolegal Abstracts at end of letter M
  accident, state laws on (Bureau report), 866
  A M A Reference Committee on, (report), 1479
  Health See Insurance, sickness
  Hospitalization See Hospitals, expense insurance, Medical Service Plans
  Life See also Metropolitan Life Insurance Company
  life for doctors returning to service, 1571
  Medical Society Medical Service Plan: See Medical Service Plans
  Sickness See also Hospitals, expense insurance, Medical Service Plan
  Sickness, Beveridge Plan See National Health Service England
  sickness (compulsory), American Public Health Association disapproves, 932—E
  sickness (compulsory), Association of State and Territorial Health Officers' resolution support A M A opposition to, 832, 1186
  sickness (compulsory), and the new U S. Congress, 1009
  sickness (compulsory), pharmacists disapprove, 690—E
  sickness (compulsory), propaganda for, 49
  sickness (compulsory), Representative Dingell's misuse of *Congressional Record* for propaganda, 552—E, 767
  sickness (compulsory), state laws on (Bureau report), 866
  sickness, federal bills on, A M A Washington Office report, 638
  sickness, Health Insurance Plan of Greater New York, [Shapiro] 412—C, [Baehr] 485—C
  sickness, National Health Service: See National Health Service, England
INSURANCE—Continued
  sickness, 1950 revision of "Voluntary Prepayment Medical Care Plans," 317—E
  sickness, One Half the People Doctors and Crisis of World Health, [Wilson] 334—C
  sickness (voluntary), actuarial progress by Blue Cross and Blue Shield, 1264—E
  sickness (voluntary), Advertising Campaign of A M A Favoring. See American Medical Association National Education Program
  Workmen's Compensation. See Workmen's Compensation
INTER-AMERICAN. See also Latin-American; Pan-American
  Congress of Surgery (7th), 772
  Congress on Brucellosis, 560 1274
INTERCOURSE, Sexual: See Coitus
INTERN See Interns and Internships
INTERNAL MEDICINE
  American Board of: See American Board
  International Congress of (1st), 256
INTERNAL SECRETION, Glands of See Endocrine Glands
INTERNATIONAL See also United Nations; World Health Organization; World Medical Association, list of Societies at end of letter S
  Bank for Reconstruction and Development organizes mission to Colombia, 1199
  Cancer Congress, environmental cancer detection unit, 1194
  Congress of Internal Medicine (1st), 256
  Congress of Medical Aspects of Sport (8th), Italy, 200
  Congress of Microbiology (5th), 568
  Congress of Ophthalmology (16th), London, 330
  Congress of Pediatrics (6th), Switzerland, 777
  Congress of Radiology (6th), London, 410
  Congress of Surgery (7th), Argentina, 946
  Congress on Asthma (2nd), Paris, 255
  Congress on Kinesitherapy (5th), 332
  Congress on Psychiatry, Paris, 256
  Federation of Physical Medicine organized in London, [Krusen] *730
  Medical Assembly of Interstate Postgraduate Medical Ass'n of North America, 559
  medical meetings in Verona, Italy, 1019, 1498
  meetings on syphilis, 332
  Society of Haemotology, (3rd congress) London, 1197
  Spanish Speaking Association of Physicians (1st congress) New York, 1015
  Symposium on Steroids, 1274
INTERNS AND INTERNSHIPS: See also Preceptorships, Residents and Residencies
  approved by A M A, *131; *135; 1506
  available by USPHS, 472
  deferment, 1099
  deferment, general policies and procedures by U S Navy, 52
  medical education in national emergency, 1095—E, (Joint Committee statement) *1114
  required, *122
  rotating, of USPHS, 400
  state laws on, (Bureau report) 864
  under Selective Service System, *110
INTERSCIENCE Commission organized at U. of Pennsylvania, 699
INTERSEXUALITY: See Hermaphroditism
INTERVERTEBRAL DISK See Spine
INTESTINAL INFANTILISM: See Celiac Disease
INTESTINES See also Appendix, Cecum; Colon; Duodenum; Feces, Gastrointestinal Tract, Ileum; Jejunum, Rectum, etc
  absorption of fats in sprue, [Jimenez Diaz] 430—ab
  bacteria effect of antibacterial agents, [Dearing] 1590—ab
  bacteria in ulcerative colitis, effects of chemotherapy, [Marshall & others] *900
  bacteria (normal) in ulcerative colitis, [Seneca] 418—ab
  Disease: See also Appendicitis; Colitis, *Diarrhea, Dysentery; Ileitis; Typhoid*
  disease, chloramphenicol for infants with acute enteric syndrome, [Nassi] 350—ab
  disease, course in diagnosis of, 189—OS
  diverticula of duodenum, 197
  diverticulitis (acute) [Byrne & others] *823
  diverticulum, Meckel's, [Jay] 788—ab
  diverticulum, Meckel's, irreducible intussusception from, [Aitken] 1310—ab
  diverticulum, use of "saraka," 888
  Hernia See Hernia
  Inflammation: See Ileitis
  Intussusception See Intussusception
  lesions from roentgen irradiation, [Ceelen] 880—ab
  perfusion in severe chronic uremia, [Maluf] 1029—ab
  roentgenography of small intestines, Spain, 1499
  schistosomiasis, Brazil, 1500
  surgery, nutritional problems after resecting small intestine for regional ileitis, [Kiefer & Arnold] *903
  tuberculosis, Peyer's patches in, roentgenography, 1499
INTOXICATION. See Alcoholism, Medicolegal Abstracts at end of letter M
INTRAVENOUS Clotting See Phlebothrombosis
INTUSSUSCEPTION
  in infants and children, reduction by barium enema, [Ravitch] 1029—ab
  irreducible, due to Meckel's diverticulum, [Aitken] 1310—ab
INVALIDS See Disease, chronic; Patients
INVESTIGATORS. See Research
IODINE
  Dusting Powder: See Vioform
  in Blood: See Blood
  protein-bound, use in goiter, [Harsha] 956—ab
  radioactive, and coronary insufficiency, 812
  radioactive, renal clearance, [Berkson] 265—ab
  radioactive, thyroid tumor induced with, [Doniach] 1519—ab
  *radioactive, treatment of adenocarcinoma metastases from thyroid to lung, [Freedberg & others] *16*
  radioactive, treatment of toxic goiter complicating diabetes, [Beidleman] *925
  radioactive, treatment of toxic goiter, results, [Werner] 417—ab
  radioactive, uptake by thyroid, [Albright] 954—ab
IODOCHLORHYDROXYQUIN (vioform)
  not irritating when given rectally, [Lewis & Leake] 949—C
IODOPROTEINS
  natural and artificial, 1393
IODOTHYROXINE
  natural and artificial iodoproteins, 1393
ION TRANSFER
  in study of protein, Italy, 1107
IONTOPHORESIS; Ionization: See Ion Transfer
IRAQ, WHO project in, 403
IRIDOCYCLITIS
  treatment, 510
IRITIS
  treatment, subconjunctival injection of cortisone, [Koff & others] *1259
IRON
  dermal loss of, 47—E
  metabolism: hematopoiesis after phlebotomy, [Finch] 1123—ab
  oxide, saccharated, intravenously in hypochromic anemia, [Brown & others] *1084
IRRADIATION See Radiation, Radium; Roentgen Rays, Ultraviolet Rays
IRRIGATION See Peritoneum
ISLANDS of Langerhans See Pancreas
ISONORIN sulfate, N N R, (description) 239; (Carroll Dunham Smith) 239
ISOPROPYLARTERENOL
  hydrochloride, N N R, (description) 238; (Winthrop-Stearns] 238
  sulfate, N N R, (description) 239, (Carroll Dunham Smith) 239, (Abbott) 927
ISOTOPES See Radioactive Isotopes
ISRAEL
  dracunculosis in immigrants, 1281
  Fellowship Committee of Medical Association of, 1194
  Research Council Bulletin (1st), 1281
ISUPREL hydrochloride, N N R, (description) 238, (Winthrop-Stearns) 238
ITALIAN
  Congress of Occupational Medicine (correction), 326
  Society of Gerontology and Geriatrics established, 1393
ITCHING See Eczema, Pruritus
IVY-Emerson-Schafer Method. See Schafer
IZAAK Walton Award. See Prizes

J

JAMA. See American Medical Association Journal
JACKSON Lectures See Lectures
JAPAN
  medical educators in, 483, [Long] 781—C
JAUNDICE
  Epidemic (Homologous Serum): See Liver inflammation
  in newborn and perceptive deafness, [Gerrard] 1310—ab
  Infectious See Liver inflammation
  intrahepatic and extrahepatic, diagnosis of, [Edlund] 1594—ab
  Malignant: See Liver atrophy (acute yellow)
  pathogenesis, Congress on Gastroenterology discusses, Spain, 199
  treatment, advances in, [Steigmann] *1076
  treatment, sympathectomy in icterus due to hepatitis, France, 859; [Mallet-Guy] 1038—ab
JAWS See Teeth
JEJUNUM
  cancer, [Pridgen] 269—ab
  paralysis of distal loop after partial gastrectomy, [Reynolds] 957—ab
  peptic ulcer, vagotomy for, [Mandl] 1216—ab
JERSILD, OLAF, death, 1584
JEWELRY
  dermatitis from, 725
JEWS: See Israel
JOBS See Industrial Health

- JOHANSSON-LARSEN DISEASE
  - of patella [Wolf] 125—ab
- JOHNS HOPKINS
  - Medical Institutions, development project to aid 55
  - University, atmosphere in which Dr Welch was popsy 361—ab
- JOINT COMMITTEE on Medical Education in Time of National Emergency (statement adopted by A M A Council and Association of American Medical Colleges), 1095—E, 1111
- JOINTS See also Arthritis under names of specific joints as Hip, Shoulder, Wrist
  - diseases desoxycorticosterone and ascorbic acid for, [Buttaro] 502—ab
- JONEZ, HINTON D, method of treating multiple sclerosis 1533
- JOSLIN ELLIOTT P, victory medal for patients London 1280
- JOURNALS See also Library, Newspapers
  - American Druggist poll, pharmacists 'disapprove compulsory health plan 190—L
  - American Journal of Medical Sciences, (Dr. Kern to head editorial board) 1192
  - A M A Public Relations Department cooperation with various magazines, 610
  - American Review of Tuberculosis (July 1950 memorial to Dr E R Baldwin), 525
  - Archives published by A M A See American Medical Association journals (special)
  - British Medical Journal, Dr Brain's article. Genius and Psychosis 692—L
  - Congressional Record (Representative Dingell's misuse of), 552—E, 717, (Representative Biemiller's fancy package of untruths), 933
  - Experimental Medicine and Surgery, anniversary volume honoring Dr Bruno Z Kisch, 104
  - Hygeia (Today's Health): See American Medical Association
  - Journal of the A M A See American Medical Association
  - Journal of Maine Medical Association (honors Dr Higgins) 1273
  - Lancet (September issue reduced to 8 pages), 944
  - medical information exchange for Argentina, 946
  - Nordisk Medicin, Dr Lichtenstein contributions to, 1021
  - requests for reprints use of postcard with detachable label, [Keitel] 1110—C
  - Revista de la Confederacion Medica Panamericana, 695
  - State Journal Advertising Bureau, report, 637
  - Today's Health. See American Medical Association
  - Yale Journal of Biology and Medicine, 251
- JUICES See Fruit
- JURISPRUDENCE, MEDICAL: See Medical Jurisprudence
- JUVENILE DELINQUENCY, [Nicholson] *1538

K

- KALA AZAR See Leishmaniasis
- KALAMAZOO Academy of Medicine endorses J A M A editorial on inspection of hospitals, [Rigterink] 1110—C
- KANSAS University of. See University
- KATAYAMA DISEASE liver cirrhosis in parasitic diseases, 185—E
- KELLOGG Foundation See Foundations
- KELOIDS
  - in blastomycosis, 1584
  - treatment, acupuncture, France, 858
- KEMPNER Rice Diet. See Blood Pressure, High
- KENDALL, EDWARD C, Nobel Prize to, 849—E
- KERATITIS
  - superficial punctate, [Thygeson] *1514
  - treatment ACTH in diabetic with moderate heart disease [Mazar & Bogdasarian] *1369
- KERNICTERUS
  - perceptive deafness with in newborn of mother with rubella, [Gerrard] 1310—ab
- 17-KETOSTEROIDS
  - in Urine See Urine
- KHELLIN (visammin)
  - effect on cardiac pain by "daily report card" method, [Cattell] *891
  - treatment of angina pectoris, [Greiner] 1025—ab, [Armbrust] 1202—ab
  - treatment of coronary insufficiency, [Best] 1512—ab
- 'KICKBACKS,' Bureau report on, 652
  - contrary to public policy, 47—E
- KIDNEYS See also Ureters, Urinary System
  - anomalies associated with sliding hernia of ovary, [Beck] *462
  - anomalies unilateral renal ectopia with renal carcinoma [Earlam] 425—ab
  - Artificial See Peritoneum irrigation
  - blood circulation and life stress, [Pfeiffer] 1514—ab
  - calculi and parathyroid adenoma, [Kretschmer] 420—ab
  - calculi, diet and colic of, 726
  - calculi (phosphatic) aluminum gels for, [Shorr & Carter] *1549
  - cancer, with unilateral renal ectopia, [Earlam] 425—ab
- KIDNEYS—Continued
  - changes in gout [Brown] 1211—ab
  - clearance of radioiodine [Berkson] 265—ab
  - disease ACTH and cortisone in, [Thorn] 1205—ab
  - disease concentrate human serum albumin in nephrosis [Luetscher] 790—ab
  - disease, congestive heart failure in carbon tetrachloride nephrosis [Friedberg] 1025—ab
  - disease nephrotic syndrome, latest treatment use of ACTH or cortisone 1536
  - disease prevention of lower nephron nephrosis 1017
  - disease renal osteitis fibrosa, [Dreskin] 1588—ab
  - disease treatment of nephrotic syndrome by inducing measles 211
  - excision, cure of hypertension by nephrectomy, [Burkland] 791—ab
  - function research, USPHS, 100
  - function test, low value for, 812
  - function test penicillin excretion, [Dorner] 273—ab
  - function test phenolsulfonphthalein sodium, 1102
  - Glomeruli See Nephritis, glomerular
  - hemodynamics and toxemias of pregnancy, [Turner] 869—ab
  - Inflammation See Nephritis
  - insufficiency, acromioclavicular changes in hyperparathyroidism, [Nathanson] 875—ab
  - insufficiency, creatinine relation to nonprotein nitrogen in, [Gaberman & others] *1216
  - Libman-Sacks disease involving, [Daugherty] 261—ab
  - renin formation in, location, [Taquini] 1131—ab
  - Sclerosis: See Nephrosclerosis, arteriolar
  - Surgery: See also Kidneys, excision, Kidneys, tuberculosis
  - surgery, nephro-omentopexy, [Rudler] 1132—ab
  - transplantation, homotransplantation in human, [Lawler & others] *811
  - tuberculosis, paraaminosalicylic acid for, 809
  - tuberculosis, streptomycin for, [Rinker] 1029—ab
  - tuberculosis, surgical treatment, [Ericsson] 501—ab
  - tumors (cortical) and crystalline ester cholesterol [Leary] 1119—ab
  - tumors, Wilms', in children, [Jacobsen] 1313—ab
- "KILLED in Action" See Korean War
- KIMBLE Glass Research Award See Prizes
- KINESITHERAPY
  - International Congress on (5th), 332
- KISCH BRUNO Z, anniversary volume of *Experimental Medicine and Surgery*, 101
- KLEBSIELLA
  - pneumonia (acute primary), treatment with streptomycin and aureomycin, penicillin and sulfadiazine ineffective, [Nataro & others] *12
- KNEE See Patella
- KOREAN WAR 1950—
  - blood shipment by the Red Cross, 1571
  - hospital ship from Denmark for Korea, 1583
  - medical care for soldiers in, 769
  - medical care training program provided physicians in the emergency, 1382
  - medical education and current emergency, *109, 662, 1095—E, 1111
  - medical officers for the armed forces, procuring, 650
  - medical record 935
  - on-the-spot field tests of equipment and drugs by the Army 1572
  - Swedish Field Hospital to Korea 257
  - tour of Far East functioning of U S Army Medical Corps [Duncan] 1501—C
  - unauthorized use of World Wide pictures by Democrats, 930—E
  - wounded evacuation from Korea 320
  - wounded medical team overcomes major problems in caring for, 1012
- KOREAN WAR, HEROES
  - Brune (W H), Silver Star, 1271
  - Hedberg (W O), Bronze Star Medal 1271
  - Lam (G F), Bronze Star Medal, 1271
  - Moore (Robert M Jr), killed in action, 480

L

- L Substance
  - potentiates sulfonamide, [Bigger] 1521—ab
- LABELS
  - detachable, on postcard, use for requesting reprints, [Keitel] 1110
  - suggest pictured labels showing veins, skin or muscles, [Helpern] 65—C
- LABOR See also Abortion, Cesarean Section, Infants, Newborn, Maternity, Midwives, Obstetrics, Pregnancy, Puerperium, "Childbirth" under Medicolegal Abstracts at end of letter M
  - active principle (eutocin) of uterine contractions in parturition, [Hanon] 277—ab
  - Anesthesia in See Anesthesia
  - causes of fear in patients [Bloss] *1358
  - Complications See also Eclampsia
  - complications strangulated diaphragmatic hernia, [Pearson & others] *22
  - complications thrombophlebitis, 359
- LABOR—Continued
  - Death during See Maternity, mortality
  - liver lesions in obstetric shock, [Govan] 346—ab
  - Premature See also Infants, premature
  - premature rupture of membranes, 811
  - presentation, breech delivery, 300
  - presentation occiput posterior and breech presentation, method of handling, 286
  - prolonged What to do in case of, use of morphine, 974
  - rhinomedication by cocainization of turbinate and nasal fossa, [Valle] 128—ab
- LABOR UNIONS See Industrial Trade Unions
- LABORATORIES
  - clinical state laws on (Bureau report), 867
  - diagnosis courses in by USPHS, 769
  - eye bacteriology, Canada, 1287
  - Laboratory Diagnosis of Tuberculosis (film review), 1507
  - laboratory of embryology to be organized, Brazil, 1581
  - mobile water laboratory, Ky, 1385
  - new, at U of Virginia 101
  - new building (at U of Texas), 250, (U. of Virginia), 101
  - research, in Liberia, 556
  - Smith, Kline and French, awarded silver anvil, 1191
  - Technicians See Technologists
  - virus (at U of Illinois), 323; (at U. of California), 697, (Ky), 1191
  - Workers See Technologists
- LACRIMAL GLANDS
  - drainage poor in infant, 1110
- LACTATION See Milk, human
- LACTOFLAVIN See Riboflavin
- LAKE MICHIGAN
  - pollution suit ending, Illinois, 1102
- LAME See Crippled
- LAMPS See Infra-Red Rays, Sun Lamps, Ultraviolet Rays
- LANCETS
  - surgical sterilization of for puncturing ear or finger, 1226
- LAND See Soil
- LANGERHANS, Islands of. See Pancreas
- LANGUAGE See Terminology
- LARSEN-JOHANSSON DISEASE
  - of patella, [Wolf] 125—ab
- LARVA Infestation See Myiasis, Trombidiosis
- LARYNX See also Otolaryngology
  - granuloma after intratracheal anesthesia, [Wattles] 1122—ab
  - smoker's, 377—ab
- LASKER Award See Prizes
  - Planned Parenthood Foundation: See Foundations
- LATEX, toxicity, 809
- LATIN AMERICAN See also Inter-American, Pan American
  - Congress of Orthopedics and Traumatology (first), 1016
- LAW in relation to Legislation See Medical Jurisprudence
- LAWS AND LEGISLATION
  - A M A Bureau of See American Medical Association
  - A M A Committee on Legislation report, 661, 1171
  - federal, doctor draft law, 48, 398, 399
  - federal proposed A M A resolution on determining policy of, 1485
  - federal, recommended on chemicals in foods, 1381
  - federal, report of A M A Washington Office, 638
  - model law for admitting mental patients, 245
  - Sherman Anti-Trust Act See Sherman
  - state, summary survey (Bureau report), 654; 861
  - state, Uniform State Health Laws 651
  - Violation of See Medical Jurisprudence, Medicolegal Abstracts at end of letter M
  - Workmen's Compensation See Workmen's Compensation
- LAWSUITS See Medical Jurisprudence
- LAXATIVES See Cathartics
- LEAD
  - in urine, polarographic determination, [Baker] 498—ab
  - in urine, rapid test for? 1223
  - industrial hazard 1223
  - multiple sclerosis relation to, [Campbell] 584—ab
  - poisoning BAL treatment, [Bastrup] 960—ab
  - poisoning, ratio of large to small lymphoid cells in, [Shiels] 1311—ab
- LEAGUE of Nations See United Nations
- LEATHER
  - chemicals used in tanning, 1535
- LECTURES See also Book Notices at end of letter B
  - Abt (Isaac A), 474
  - Alpha Omega Alpha, 853, 1193
  - Baer (first), 770
  - Barnard 771
  - Belfield (William T) Memorial 401
  - Billings (Frank), [Wilder] *1234
  - Blatt (Maurice Lamm) Memorial Fund, 323
  - Brickner 854
  - Carey Memorial, 1103
  - DeLee (first), 697

LECTURES—Continued
  Dyer (R E) lectureship established, 696
  Fenger (Christian) 1576
  Friedenwald Memorial, 1191
  Gimbel (Jacob) 1191
  Gross (Louis) Memorial, 405
  Hartford Fall, 770
  Harvard (3rd), 401
  Harvey (2nd) 558; (3rd) 939; (4th) 1385
  Hauswirth, *1273*
  Hess (Julius H), 474
  Huggins, 699
  Hutchings Memorial (2nd), 324
  Jackson Memorial in ophthalmology, 325
  McReynolds Lecture, 1193
  Martin Memorial, 559
  Medical Society of State of New York, 475
  Moore Research, 858
  Pollitzer (Sigmund) Lectureship established, 324
  Pusey, 697
  Rigler, 474
  Salmon (Thomas William), 1578
  Sheinin (John J.) (1st), 401
  Sommer Memorial, 403
  Starin, 854
  Terry (Robert J), 771
  Tufts Alumni, 1103
LEG See Legs
LEGAL MEDICINE. See Laws and Legislation; Medical Jurisprudence, Medicolegal Abstracts at end of letter M
  A M A Bureau of. See American Medical Association
  Responsibility See Malpractice
LEGISLATION See Laws and Legislation
LEGS See also Extremities; Foot; Hip; Tibia
  Amputation. See Amputation
  Cramps See Cramps
  Fractures See under names of specific bones
  gangrene after scarlet fever, [Bethe] 1312—ab
  gravitational syndrome, *[Girdwood] 1129*—ab
  one short limb, 1326
  spastic condition, 725
  Ulcers See Ulcers; Varicose Veins
LEISHMANIASIS
  cutaneous, effect of high altitude, [Schmidt] 264—ab
LEMCO
  sulfonamide potentiated by L substance, [Bigger] 1521—ab
LENS, CRYSTALLINE
  anomalies (congenital), [Ingalls] 874—ab
  Opacity. See Cataract
  retrolental fibroplasia as syndrome, [Ingalls] 874—ab; [Heath] 953—ab
  retrolental fibroplasia, research on, 1578
LEPROSY
  classification (International and Pan American), handling of patients according to, [Oteo de Hoogh] 421—ab
  high altitude, effect on, [Schmidt] 264—ab
  in Bolivia, 258
  Pan American Conference on (3rd), 192
  treatment, amithiozone, [Ryrie] 1036—ab
  treatment, current status, [Johansen & Erickson] *985
  treatment, sulfone, [Sloan] 341—ab
  treatment, sulfone, relapse after, [Erickson] 1127—ab
  tuberculoid, vitamin D_2, as adjuvant to sulfones, [Herrera] 276—ab
LEPTOSPIRA
  pomona, swineherd's disease due to, 1489
  identification in rats, Brazil, 1281
LETTERS
  National Letter Writing Week, "Letters from *America," 932—E*
LEUKEMIA
  acute, hemorrhagic syndrome, [Tzanck] 1524—ab
  bone changes in, [Hasbun] 1216—ab
  in radiologists, [March] 1302—ab
  incidence in physicians, 1556—ab
  International Society of Haemotology discusses, 1197
  monocytic, ACTH for, [Kinsell & others] *617
  treatment, aminopterin, [McCall] 345—ab; [Dacie] 585—ab
  treatment, aminopterin, in children, [Smith] 337—ab
  treatment, colchicine and roentgen rays, [Keibl] 276—ab
  treatment, cortisone and ACTH in, [Spies] *269—ab; 1036—ab; [Taylor & others]* *1061; [Pearson & Eliel] *1319
  treatment, nitrogen mustard, [Spurr] 415—ab
LEUKOCYTES: See Eosinophils
  Count: See Agranulocytosis; Leukemia; Mononucleosis, Infectious
LEUKONYCHIA
  white finger nails since birth, 1140
LEUKOPLAKIA
  of cheek, 974
LEUKOTOMY: See Brain, surgery
LEVINSON Memorial Foundation: See Foundations
LIABILITY: See Malpractice
LIBBY'S
  Junior Foods, *763; 847; 928*
  Strained and Homogenized Chicken Soup, 1092
LIBIDO: See also Frigidity
  vasectomy effect on, [Garrison & Gamble] *294, *[O'Conor] 1502—C*
LIBMAN-Sacks Disease. See Endocarditis, verrucous
LIBRARIANS: See Library; Medical Record Librarians
LIBRARY See also Articles; Books; Journals; Newspapers
  A M A: See American Medical Association
  Boston Medical, *75th anniversary, 324*
  Edward Rhodes Stitt Library at Naval Medical School, 1190
  Medical Library Association certification of medical librarians, 467—E; [Felter] 1023—C
  medical, Library Association Conference, Sept 20, 1950, London, 1497
  U. S Army Medical Library (future status; location), 398, (Association of Honorary Consultants), 398
  U. S. Information Service Library, 1392
LICENSURE. See also Midwives, State Board
  A M A. Annual Congress on, 665
  certificates from other than medical practitioners, London, 63
  internship required for, *123
  regulation of practice of healing art, 654
  requirements for practice of pathology, [Hall] *1256
  state laws on (Bureau report), 863
LICHTENSTEIN, Adolf, death, Sweden, 257; 1021
LICORICE
  extract with deoxycortone-like action, [Molhuysen] 1408—ab
LIDS: See Eyelids
LIE DETECTOR See Medicolegal Abstracts at end of letter M
LIFE: See also Death
  Duration: See Old Age
  expectancy increased in 1919, 476
  Insurance: See Metropolitan Life Insurance Co.
  Insurance Medical Research Fund. See Foundations
  Stress See Stress
LIGATURE: See Sutures
LIGHT. See also Sunlight
  bubble Christmas tree light, danger from drinking fluid, 1601
LIMBS: See Extremities
LIPID PNEUMONIA: See Pneumonia
LIPIDS: See Oil
  in Blood: See Blood
LIPOGRANULOMA
  sclerosing, [Smetana] 1305—ab
LIPOID Pneumonia. See Pneumonia, lipid
LIPOMA
  episacroiliac, 811
LIQUOR, Alcoholic: See Alcohol
LIR'MIN, concentration of liver extract, 809
LITERATURE: See also Books; Journals; *Newspapers; Poetry; Terminology*
  Shakespeare's knowledge of chest diseases, [Vest] *1232
LITHIASIS. See Calculi (cross reference)
LIVER. See also Bile Ducts; Biliary Tract
  atrophy (acute or subacute), malignant hepatitis with signs of, [Salvesen] 426—ab
  atrophy (acute yellow), clinical studies, [Salvesen] 426—ab
  atrophy (acute yellow) in epidemics of virus *hepatitis, [Boscardi] 1594—ab*
  biopsy in cirrhosis, [Popper] 1118—ab
  blood sugar and, 1181—ab
  cancer metastasis from sigmoid cancer, [Solomon & Kreps] *221
  cirrhosis and coffee, 725
  cirrhosis, biopsy in, [Popper] 1118—ab
  cirrhosis: hepatoenteropathy of megaloblastic anemia, new clinical form, [Oliver-Pascual] 801—ab
  cirrhosis in parasitic diseases, 185—E
  cirrhosis, myocardosis with, [Oppenheim] 1132—ab
  cirrhosis (portal), hepatic function in, [Ricketts] 419—ab; 872—ab
  cirrhosis, salt retention in, [Goodyear] 1123—ab
  cirrhosis, water retention after cortisone therapy, [Chapman & Kark] 65—C
  coma (acute), procedures for treatment, [Steigmann] *1080
  coma, aureomycin therapy, [Farquhar] 1203—ab
  damage in jaundice, management of, [Steigmann] *1076
  Disease: See also Jaundice
  disease, action of lipotropic substances in, measured by radioactive phosphorus, 1566—E
  disease, acute and severe, treatment, [L 1592—ab
  disease (chronic), aureomycin in, [Sl 1203—ab
  *dysfunction, cause, [Wilder] *1236*
  Extract: See Liver preparations
LIVER—Continued
  Failure: See Liver insufficiency
  fatty infiltration after ACTH, [Pelner & Waldman] 412—C
  fatty infiltration in alcoholics, [Cachera] 1315—ab
  function in heart insufficiency, [Branwood] 71—ab
  function test in portal cirrhosis, [Ricketts] 419—ab; 872—ab
  inflammation, acute yellow atrophy in epidemics of virus hepatitis, [Boscardi] 1595—ab
  inflammation, aureomycin in acute viral *hepatitis, [Shaffer] 709*—ab
  inflammation, clinical studies of malignant hepatitis, Norway, 1108
  inflammation (endemic) in American troops in postwar Germany, [Paul] 797—ab
  inflammation, fatal virus hepatitis occurring in infant of 3 months, [Lipman] 1090
  inflammation, hepatitis after gold therapy, [Archer] 782—C
  inflammation, hepatitis after using irradiated human plasma, [Barnett & others] *226, 241—E
  inflammation, hepatitis in tattooed service *personnel, [Smith]* *1074
  inflammation, homologous serum hepatitis, 241—E; [Steele] 419—ab; [Robinson] 577—ab
  inflammation, homologous serum jaundice, [Runyan & others] *1065
  inflammation, homologous serum jaundice and dried pooled serum, 482; [Kjergaard] *1133—ab*
  inflammation, homologous serum jaundice vs methods of plasma storage, [Allen] *1069
  inflammation, homologous serum jaundice with use of irradiated plasma, [James & others] *228; 241—E
  inflammation, injecting whole blood into infants, *danger of serum jaundice,* (reply) [Troy] 1602
  inflammation, irradiated plasma to protect against virus hepatitis, 511
  inflammation, prognosis of chronic hepatitis in children, [Logan] 268—ab
  inflammation, streptomycin in infectious jaundice, [Marassi] 1314—ab
  inflammation, sympathectomy in icterus due to, France, 859; [Mallet-Guy] 1038—ab
  inflammation, syringe-transmitted jaundice hepatitis in 4 diabetics, [Sherwood] 1304—ab
  inflammation, viral hepatitis transmitted by ultraviolet-irradiated plasma, [Rosenthal & others] *224; 241—E
  injury and repair after anesthesia and operation, [Ravdin] 1511—ab
  insufficiency, failure in portal cirrhosis, *[Ricketts] 872—ab*
  insufficiency in diabetes mellitus, [Frankel] 1205—ab
  lesions in obstetric shock, [Govan] 346—ab
  myeloid metaplasia, [Block] 413—C
  necrosis (experimental dietary), aureomycin in, [Gyorgy] 709—ab
  parenchyma, diffuse impairment; BAL for, [Janovics] 1524—ab
  preparation, extracts, concentration of, 809
  swelling, streptomycin or aureomycin in large doses, cause? 726
  Swift's strained, also chopped liver and bacon, 763
  trauma, [Papen] 1032—ab
LOA LOA: See Filariasis
LOBOTOMY: See Brain surgery
LOCKJAW: See Tetanus
LONGEVITY: See Life expectancy; Physicians, veteran
LOVELACE Foundation: See Foundations
LOW BLOOD PRESSURE: See Blood Pressure, low
LUCE, DEAN SHERWOOD
  A M A General Practitioner Award to, (biographical sketch; portrait) 1378—E; (balloting) 1469
LUGARO Prizes: See Prizes
LUMINAL: See Phenobarbital
LUNGS: See also Bronchus; Pleura; Respiratory System
  acute cor pulmonale, [Mack] 262—ab
  aplasia, [Ingram] 1303—ab
  Aspiration of Oily Medicaments into: See Pneumonia, lipid
  beryllium inhalation effect on, [Hall] 489—ab
  Blood Supply: See Arteries, pulmonary
  calcification, disseminated, [White] 710—ab
  calcification (disseminated): tuberculin negative, histoplasmin positive, [Furcolow] 582—ab
  calcification in students, [Prior] 1127—ab
  calcification with anergy, [Katz] 1031—ab
  cancer, [Delbert] 64—C, 410
  cancer and tobacco smoking, [Levin] 782—C; 1391
  cancer (bilateral) after thorotrast, [Abrahamson] 72—ab
  cancer, bronchogenic, [Beeler] 492—ab
  cancer, cytologic diagnosis, evaluation, [Farber & others] *1

breast, testosterone

thyroid, radioactive
& others] *16
cancer, operability, angiocardiographic study, [Dotter] 1026—ab
cancer, symptoms and operability, [Marcozzi] 73—ab
Cavitation: See also Tuberculosis of Lung
cavitation, from polyarteritis, [Sandler & others] *754
cavities, inject chemotherapeutics into, [Ebers] 1216—ab
changes, in uremia, [Hyman] *819
coccidioidomycosis, excision in, [Melick] 711—ab
coccidioidomycosis, surgical treatment, [Cotton] 1515—ab
Collapse: See Pneumothorax; Tuberculosis of Lung, artificial pneumothorax in
complications after using curare, Brazil, 779
cryptococcosis, [Ratcliffe] 1309—ab
Disease: See also Pneumonoconiosis
disease, accidentally detected, [Stensrud] 275—ab
disease, should patients smoke? 437
disease symptoms of gasoline intoxication, [Zucker] 489—ab
disorder after exposure to aluminum oxide, [Schwellnus] 273—ab
edema, after transfusion, 1046
Embolism of Pulmonary Artery: See Embolism, pulmonary
granulomatosis (chronic) near beryllium plant, [Chesner] 577—ab
Hodgkin's disease (primary) [Yardumian] 871—ab
Infection: See Influenza; Pneumonia; Tuberculosis of Lung
lesions, diagnosis, [Bass] 412—C
Lung-heart preparation (film review) 202
mechanical lung and heart, [Stokes] 1033—ab
moniliasis, 726
mycosis, cysts in, [Brea] 718—ab
shrunken right middle lobe, [Rubins] 1122—ab
surgery, resection for metastatic malignant lesions, [Seller] 267—ab
toxicity of wetting agents in aerosols, [Hall] 1202—ab
Tuberculosis: See Tuberculosis of Lung
tumors, alveolar cell, [Good] 576—ab; 1576—E
tumors, paraffinoma (lipid pneumonia), [Berg] 1514—ab
tumors, symptomatic arthritis in [Holmes] 715—ab
tumors, thymoma, myasthenia gravis with [Derow] 1516—ab
LUPULON
  treatment of leprosy, [Johansen & Erickson] *989
LUPUS ERYTHEMATOSUS
  dermatomyositis and, [Madden] 1119—ab
  disseminated, blood factor in, [Haserick] 576—ab
  disseminated, cortisone for, [Shy & others] *1354
  disseminated, cortisone and ACTH for, [Hench & others] *1330; [Soffer] 1588—ab
  inclusion phenomenon (LE factor), [Berman] 263—ab
  treatment, cortisone and ACTH, hypercholesteremia during, [Adlersberg & others] *909
LUZIER'S, Incorporated
  cosmetic preparations accepted by A M A. Committee, 1004
LYMPHATIC SYSTEM: See also Mononucleosis, Infectious
  adenitis from cat scratch, [Debre] 718—ab
  cancer, staining to identify regional nodes during operation, [Weinberg] 270—ab
  cancer (metastatic) of cervical nodes, irradiation of, [Martin] 875—ab
  lipomelanic reticulosis, [Kirsch; Siegel] 65—C
  tumor of nodes, nitrogen mustard in neoplastic adenopathy, [Abu Jamra] 1040—ab
  tumors, plasmacytoma of node, [Simon] 1211—ab
LYMPHOGRANULOMA
  Benign: See Sarcoidosis
  Malignant: See Hodgkin's Disease
  treatment, nitrogen mustard, [Abu-Jamra] 1040—ab
LYMPHOGRANULOMA, VENEREAL
  granuloma inguinale and, [Kornblith] 70—ab
  treatment, aureomycin, [Wammock] 493—ab
  treatment, surgical, [Schmid] 589—ab
LYMPHOID
  cells, ratio of large to small in lead poisoning, [Shiels] 1311—ab
LYMPHOMA
  treatment, ACTH and cortisone, [Pearson & Eliel] *1349
  treatment, nitrogen mustard, [Spurr] 415—ab
LYMPHOPATHIA Venerea: See Lymphogranuloma, Venereal
LYMPHOSARCOMA
  treatment, ACTH, [Pearson & Eliel] *1350
  treatment, ACTH and cortisone, [Spies] 1036—ab; [Taylor & others] *1058
  treatment, nitrogen mustard [Abu-Jamra] 1040—ab
LYNORAL, N.N.R. (Organon), 927
LYOVAC Normal Human Plasma, N.N.R. (description) 760; (Sharp & Dohme) 760

M

McCORMICK, EDWARD J., reply to Oscar Ewing, 931—E
MacEACHERN, Malcolm T., retires from American College of Surgeons, 1193
McKESSON AND ROBBINS, Inc.
  cosmetic preparations accepted by A.M A. Committee, 1004
McKESSON Respirald Rocking Bed, 1181
McMAHON, JOHN S., death, 1015
McREYNOLDS Lecture: See Lectures
MAGAZINES: See Journals
MAGGOTS: See Myiasis
MAGNESIUM
  silicate, silicosis due to, 510
  trisilicate plus mucin and aluminum hydroxide in peptic ulcer, [Hardt] 571—ab
MAHONING Medical Service: See Foundations
MAICO
  D-10 Audiometer, 315
  Quiet-Ear Hearing Aids, Models G and H, 1093
MAIL: See also Letters; Postcard
  deliveries, A M A. resolution on, 1181
MALARIA
  congenital, [Jones] 1035—ab
  like fever in gastric ulcer, [Hartmann] 1591—ab
  rate, reduced in Pakistan area, 700
  treatment, chloroquine salt intravenously, [Scott] 952—ab
  treatment, pentaquine phosphate and quinine sulfate; N.N.R. (description) 761; (Abbott) 761
MALE: See Manpower; Spermatozoa
  Characteristics: See Virilism
  Hormone: See Androgens
  Impotence: See Impotence
MALFORMATION: See Deformity
MALIGNANCIES: See Cancer; Sarcoma
MALNUTRITION: See Nutrition
MALPRACTICE: See also Medicolegal Abstracts at end of letter M
  actions, limitation of, state laws on, (Bureau report) 865
  Grievance Committee: See Societies, Medical
MALT soup, Borcherdt, 1092
MALTA FEVER: See Brucellosis
MAMMARY: See Breast
MANPOWER
  medical, 554; (demands for) 1266
  physicians in service, [Meiling] *840
  scientific, 1487
MAP
  allergy map for U. S.-Canada by American Academy of Allergy, 1194
MARINE: See Merchant Marine
MARKLE Foundation: See Foundations
MAROGNA, PIETRO, death, Italy, 257
MARRIAGE: See also Coitus; Contraception; Divorce; Maternity; Pregnancy
  advisability; heredity of familial deafness, 1533
  between diabetic patients, [Lincoln] 582—ab
  Choosing for Happiness (film review), 1201
  list of marriages omitted from A M A. Journal, 633
  mixed matings; "reversion to black" mythical, 1418
  premarital examinations, state laws on (Bureau report), 862
  This Charming Couple (film review), 1201
  Who's Boss (film review), 1201
MARROW: See Bone Marrow
MARTIN Memorial Lecture: See Lectures
MARYLAND
  coxsackie virus in, [Huebner & others] *609
  Society for Prevention of Cruelty to Animals, 689—E
MASCULINIZATION: See Virilism
MASKS
  B-L-B and Meter, use in inhalational therapy, *27
  mouth, efficacy, [Schneider] 73—ab
MASSAGE: See also Medicolegal Abstracts at end of letter M
  International Congress on Kinesitherapy (5th), 332
  of scalp, partial alopecia from, [Bowers] 498—ab
MASTECTOMY: See Breast excision
MASTITIS: See Breast inflammation
MASTOIDITIS
  in newborn infants, [Esch] 348—ab
MATCHES
  effects of swallowing box of, 810
MATERNITY: See also Labor; Pregnancy
  health center in India, 1195
  mortality: deaths—one in a thousand, 1096—E
  mortality in U. S. in 1949, [Dickinson & Welker] *1395
MEAD Johnson Award: See Prizes
MEALS: See Food; Restaurants
MEASLES
  German: See Rubella
  in mothers; effect on unborn child, [Packer] 796—ab
  therapeutic, in nephrotic syndrome, 211
MEAT: See also Trichinosis
  extract, sulfonamide potentiated by L substance, [Bigger] 1521—ab
MECCA
  pilgrimage to, free of epidemics, 1195
MECHOLYL
  intranasally, cardiovascular efficacy, [Nathanson] 575—ab
MECKEL'S Diverticulum: See Intestines, diverticulum
MEDALS: See Prizes
MEDCOTRONIC Stimulator, Model 50, 1656
MEDIASTINUM
  diseases, accidentally detected, [Stensrud] 275—ab
  emphysema, [Evans] 1303—ab
  tumors, thymoma, myasthenia gravis with, [Derow] 1516—ab
MEDICAL ARTICLES: See Journals
MEDICAL ASSOCIATION: See also American Medical Association; Societies, Medical; list of societies at end of letter S
  of Israel, Fellowship Committee of, 1194
MEDICAL AWARDS: See Prizes
MEDICAL BOOKS: See Books; Library; Books at the end of letter B
MEDICAL CARE: See Medical Service
MEDICAL CAREERS
  conference, Pa , 1193
MEDICAL CENTER. See also Health center; Health unit
  New York, (Union's gift to), 854; (founders dinner) 1014; (affiliates with Mountainside Hospital) 1578; (financial report) 1578
  U. of California, 323
MEDICAL CLINIC: See Clinics
MEDICAL CODE: See Ethics, Medical
MEDICAL COLLEGE: See Schools, Medical: University
MEDICAL CONFERENCE: See Conference
MEDICAL CONGRESS: See Congress
MEDICAL CORPS: See Armed Forces; Army, U. S ; Korean War; Navy, U. S.
MEDICAL DEFECTS: See Physical Defects
MEDICAL DEPARTMENT: See Army, U. S.
MEDICAL DIATHERMY: See Diathermy
MEDICAL DIRECTORY: See Directory
MEDICAL ECONOMICS: See Economics, Medical
MEDICAL EDUCATION: See Education, Medical
MEDICAL EQUIPMENT: See Medical Supplies
MEDICAL ETHICS: See Ethics, Medical
MEDICAL EXAMINATION: See Physical Examination
MEDICAL EXAMINERS
  state laws on (Bureau report), 652; 867
MEDICAL EXPENSE INSURANCE: See Hospitals, expense insurance; Medical Service Plans
MEDICAL FOUNDATIONS: See Foundations
MEDICAL GRADUATES: See Graduates
MEDICAL HISTORY: See Medicine, history
MEDICAL JOURNALS: See Journals
MEDICAL JURISPRUDENCE· See also Laws and Legislation; Malpractice; Medicolegal Abstracts at end of letter M
  American Academy of Forensic Sciences organized in 1950, 651
  Committee on Medicolegal Problems, created, 651
  court decisions of medicolegal interest (Bureau report), 652
  Oregon physicians not guilty of restraint of trade, 552—E, 555—OS
MEDICAL LECTURES: See Lectures
MEDICAL LEGISLATION. See Laws and Legislation
MEDICAL LIBRARY; Librarian: See Library
MEDICAL LICENSURE: See Licensure
MEDICAL LITERATURE: See Literature (cross reference)
MEDICAL MAGAZINES: See Journals
MEDICAL MANPOWER: See Manpower
MEDICAL MEETINGS: See Societies, Medical; list of Societies at end of letter S
MEDICAL MISSION
  sponsored by International Bank (to Colombia), 1199
  sponsored by Unitarian Service Committee (to Germany), 58
  sponsored by U S P H S. (to Indo-China), 189
  sponsored by WHO (to Iraq), 403
MEDICAL MOTION PICTURES: See Moving Pictures
MEDICAL MOVING PICTURES: See Moving Pictures
MEDICAL MUSEUM: See Health museum

MEDICAL OFFICERS See Armed Forces; Army, U S, Medical Preparedness, Navy, U S
MEDICAL PERIODICALS: See Journals
MEDICAL PICTURES. See Moving Pictures, Medical
MEDICAL PLANS: See Medical Service Plans
MEDICAL PRACTICE. See Medicine, practice; Physicians
MEDICAL PRACTICE ACTS See Medicolegal abstracts at end of letter M
MEDICAL PREPAREDNESS
  A M A resolution on facilities of the Association available in serving the nation, 1480
  Civil Defense Administration; stockpiles of medical supplies, etc, 1266
  courses in, Texas, 939
  deferment of interns and residents, 1099, 1101
  deferment of preprofessional college students, 1095—E, (Joint Committee statement) 1111
  dental requirements drastically reduced for draft inductees, 398
  doctor draft commission deadline, 1382
  doctor-draft legislation (S 4029), 48, 187; 246, 398, 399, 768, 935 1266
  doctor-draft registrants, decentralize appointments for 1271
  drafting of former ASTP and V-12 students, 48
  Joint Committee on Medical Education in Time of National Emergency (statement adopted by A M A Council and Association of American Medical Colleges), 1095—E; 1111
  Meiling warned against building up too high ratio of physicians to troop strength, 1010
  physicians, demands for medical manpower, 1266
  physicians called to service, 186
  physicians in service 470, [Meiling] *840
  questionnaire to evaluate medical personnel, Pa, 475
  recruits normal heart sound causing unnecessary rejection, [Solis-Cohen] 1022—C
  registration of physicians for military service, Truman announcement, 554
  Selective Service System, aid to by health resources advisory committee of National Security Resources Board 692—E
  Selective Service System, medical students under, *110
  Selective Service System roentgen examinations of inductees, 245
  Selective Service System to coordinate work with state and volunteer advisory committees 554
MEDICAL PRIZES See Prizes
MEDICAL PROBLEMS encountered in undersea craft, [Pugh] *230
MEDICAL PROFESSION See Physicians Specialists, Surgeons
MEDICAL PUBLIC RELATIONS. See Public Relations
MEDICAL RECORD LIBRARIANS
  course for at Indiana U, 1272
MEDICAL REGULATING OFFICE See Armed Forces
MEDICAL RESEARCH See Research
MEDICAL RESEARCH COUNCIL
  vitamin A deprivation in man, 1581
MEDICAL RESERVES See Armed Forces; Army, U S, Navy, U S
MEDICAL RESPONSIBILITY See Malpractice
MEDICAL SCHOOLS. See Schools, Medical
MEDICAL SCIENCE See Medicine, Research; Science
  Basic See Basic Science
MEDICAL SERVICE See also Health center; Hospitals, Insurance, sickness, Medical Center
  A M A Council on See American Medical Association
  A M A Reference Committee on, (report) 1479
  Consultation See Consultation
  costs of hospitalized acute illness [Wiprud & Altman] *835, (correction) 1195
  Emergency Medical Service. See Emergency
  federal A M A Council on, A M A resolution proposing, 1478
  for Armed Forces See Armed Forces, Medical Preparedness
  for Veterans See Hospitals, veterans; Veterans
  Government Controlled See Medicine, state
  home care for prolonged illness, [Shindell] 70—ab
  Industrial See Industrial Health
  of boy scouts at 1950 jamboree, 941
  Plans See Medical Service Plans *following*
  Rural See Rural Communities
  State See Medicine, state
  Supply of Physicians for See Physicians, supply
MEDICAL SERVICE PLANS See also Hospitals expense insurance
  compulsory and voluntary, state laws on (Bureau report), 866
  costs of hospitalized acute illness [Wiprud & Altman] *835, (correction) 1195
  Health Insurance Plan of Greater New York, [Shapiro] 412—C, [Baehr] 485—C
  Medical Surgical Plan of New Jersey, 1273
MEDICAL SERVICE PLANS—Continued
  restraint of trade and prepayment plans: codes of medical ethics (Bureau report), 653
  restraint of trade and prepayment plans; case of Oregon State Medical Society, 552—E, 555, 663
  seal of acceptance, application for, and future applications (A M A Council report), 247
  state laws on, 655
  VOLUNTARY PREPAYMENT MEDICAL CARE PLANS, 1950 revision available, 247; 317—E
MEDICAL SOCIETY: See also Societies, Medical; list of societies at end of letter S
  of District of Columbia honored radio's "Dr. Paul Christian," 557
MEDICAL STATISTICS See Statistics; Vital Statistics
MEDICAL STUDENTS. See Students, Medical
MEDICAL SURGICAL PLAN of New Jersey, 1273
MEDICAL SUPPLIES See also Apparatus; Dressings, Drugs; Instruments Syringe
  Army on-the-spot test of medical equipment in Korea, 1572
  dropped by parachute, 1383
  stockpile of, 1100, 1192 1266, 1380
MEDICAL TECHNOLOGISTS See Technologists
MEDICAL TERMINOLOGY: See Terminology
MEDICAL WOMEN See Physicians, women; Students, Medical women
MEDICALLY HANDICAPPED See Crippled; Disability, Handicapped
MEDICALLY INDIGENT
  A M A Committee on Care of, 668
  medical care programs (A M A Council report), 247
  prenatal clinic set up at Michigan, 1192
MEDICATION. See Drugs
MEDICINE See also Education, Medical, Medical Service, Physicians, Surgeons
  Academy of See Academy (cross reference)
  Advances in See Medicine, progress
  Advisory Committee for Biology and Medicine to Atomic Energy Commission, 53
  Congress of See Congress
  Cults See Chiropractors, Christian Scientists; Naturopaths
  Faculty of: See Schools, Medical
  Fellowships See Fellowships
  Forensic See Medical Jurisprudence
  Foundations aiding: See Foundations
  history, Pavlov's centenary, 1589
  history, radio program on Dr J Marion Sims, 939
  in public library, London, 1497
  Industrial See Industrial Health
  Internal See Internal Medicine
  Law in relation to See Medical Jurisprudence
  Lectures See Lectures
  Legal: See Legal Medicine (cross reference)
  Military See Korean War, Medical Preparedness, Military Medicine
  Organized See American Medical Association, Societies, Medical
  Physical See Physical Medicine
  Practice See also Licensure; Malpractice; Medical Service, Obstetrics, Physicians, practicing Specialties
  practice (general) in hospitals, American Academy of General Practice manual on, 766—E
  practice (general), preparation for, and medical schools, 184—E
  practice, groups and clinics, 946—ab; 1089—ab
  practice, in Virginia, [Vogl] 334—C
  practice of by hospitals, West Virginia, 191
  practice of, by hospitals, A M A resolution on, 1482
  Practice, Opportunities for See Physicians, positions open
  practice (private), A M A resolution on hospitals competing with, 1182
  practice (private) limited for faculty members Colorado, 1272
  practice, provision of medicine for private patients, London, 63
  Preventive. See Preventive Medicine
  Prizes in See Prizes
  progress, advances noted in the press, [Boles] *361
  Psychosomatic See Psychosomatic Medicine
  Publicity See Public Relations, Publicity
  Research in See Research
  Scholarships See Scholarships
  School of See Schools, Medical
  Socialized See also Insurance, sickness (compulsory), Medicine, state
  socialized, A M A advertising campaign against, [Henderson] *319, 469—E
  socialized, A M A advertising campaign against, and the CIO, 933—E
  socialized A M A fight against; Korean war and doctor shortage, unauthorized use of World Wide pictures by Democrats, 930—E
  socialized, A M A President's page, 1186
  socialized, and ophthalmology, [Irvine] *1423
  socialized, Baltimore City Medical Society comics ("Sad Case of Waiting Room Willie") against, 46—E
  socialized, can be forced on physicians; case of Governor Warren in California, [Askey] 200—C, [Koontz] 860—C
MEDICINE—Continued
  socialized, is no bargain, [Hutcheson] *1269; [Henderson] *1570
  Socialized, National Health Service. See National Health Service, England
  socialized, state laws on federalization, 655
  Societies See Societies, Medical
  Specialization See Specialties
  state, economist Colin Clark looks at medicine 858
  state, free medicine crisis in New Zealand, 858
  state, the granny racket, statements of Ogilvie before Western Surgical Ass n [Koontz] 261—C
  state, value of advertising, Santa Clara County Medical Society, 243—E
  Tropical See Tropical Medicine
  Women in See Nurses and Nursing, Physicians, women, Students, Medical, women
MEDICINE AND THE WAR See Medical Preparedness
MEDICINES: See Drugs
MEDICOLEGAL See Medical Jurisprudence, Medicolegal Abstracts at end of letter M
MEDICOSURGICAL Society of Pisa, Italy, 1107, 1393
MEDITERRANEAN Anemia: See Anemia, erythroblastic familial
MEETINGS See Societies, Medical, list of Societies at end of letter S
MEGACOLON See Colon
MELANCHOLIA See Mental Depression
MELANOMA
  treatment, chemosurgical, [Mohs] 1119—ab
MELCAIN, treatment of hypertension with procaine in honey, [Beckmann] 428—ab
MEMORIAL Lectureship See Lectures
  to Physicians: See Physicians, memorial
MEN See Great Men, Manpower
  in Service See Armed Forces, Army, U S; Korean War; Navy, U S; Veterans
MENGERT, W F, what to do in prolonged labor, use of morphine in eclampsia, 974
MÉNIÈRE'S Disease: See Vertigo, aural
MENINGES
  hematoma, subdural and effusions, [Jackson] 274—ab
  hemorrhage, subarachnoid, [Orrego] 964—ab
  hemorrhage, subarachnoid nontraumatic, [Ley] 1314—ab
  Tuberculosis See Meningitis, tuberculous
MENINGITIS
  bacterial, after spinal anesthesia, [Keefer] 870—ab
  treatment, intrathecal, for all forms 360
  tuberculous (chronic), constitutional changes in, [Schonnenberg] 1313—ab
  tuberculous, modern treatment, [Sedellian] 1215—ab
  tuberculous, streptomycin and *p*-aminosalicylic acid in, at Children's Hospital, Zurich, [Rossi] 274—ab
  tuberculous, streptomycin and tuberculin in, [Cairns & others] *92
  tuberculous, streptomycin in, [Gonin] 74—ab, [Brainerd] 1301—ab, 1393
  tuberculous, streptomycin in, intramuscularly plus intrameningeally, [Bokkenheuser] 503—ab
  tuberculous, streptomycin treated, ocular changes in, [Heinsius] 1521—ab
MENOPAUSE
  contraceptives in, when may they be discontinued? 976
  myopathy after, cortisone effect on, [Shy & others] *1356
  osteoporosis after, 358
  toxic diffuse goiter after, estradiol and dienestrol for, [Cachera] 1523—ab
MENSTRUATION
  Cessation of: See Menopause
  function, ACTH and cortisone effect on, [Sprague & others] *1346
  functional bleeding in young girl, 358
  functional bleeding, role of thyroid, [Delsher] 1213—ab
  migraine accentuated by, 887
  premenstrual tension, [Morton] 1026—ab
  premenstrual tension and swelling of cheek, 1325
  vaginal smears and hormonal elimination during cycle, 484
MENTAL DEFECTIVES
  care of mentally defective child, Norway, 1583
  treatment, carotid-jugular anastomosis, [McKhann] 1403—ab
MENTAL DEPRESSION
  reassurance after a thrombotic episode, 888
  treatment, amphetamine and amylethyl barbituric acid, [Grahn] 1303—ab
MENTAL DISORDERS See also Alcoholism; *Dementia Precox*, *Epilepsy*; Psychoses
  Hospitalization in: See Hospitals, psychiatric
  treatment, follow-up of 330 cases treated by prefrontal leukotomy, [Stengel] 1520—ab
MENTAL HEALTH See Mental Hygiene
MENTAL HOSPITALS. See Hospitals, psychiatric
MENTAL HYGIENE
  National Association for Mental Health, Inc, (3 groups merge to form) 940

MENTAL HYGIENE—Continued
  National Institute of Mental Health, (federal grants announced) 936; (research on diabetes and personality) 1190
MENTAL STRESS: See Stress
[illegible] tolserol)
  [illegible] Teed), 311
  [illegible] sease, [Effron &
  [illegible] erapy, [Cattell] *890; *891
  toxicity: acute dehydration due to, [Rechtschaffen & Gittler] *237
dMERCAPTOPROPANOL: See BAL
MERCHANT MARINE
  Norwegian, diet of, 257
MERCUHYDRIN, See Meralluride
MERCURY
  diuretic, acute dehydration due to, [Rechtschaffen & Gittler] *237
  diuretic, intravenously, effect on return circulation, [Kaitun] 126—ab
  diuretics in ambulatory patients, [Stroud] 1406—ab
  diuretics, oral use, [Barrow] 873—ab
  poisoning and salt depletion, danger in treating failing heart, [Sanderson] 586—ab
MERLO, ERNESTO V., death, 916
MESANTOIN
  toxicity: pancytopenia, [Davies] 315—ab
META DIABETES: See Diabetes Mellitus
METABOLISM: See also under names of specific substances
  adrenal cortex and homeostasis, 1006—E
  diseases, institute on, 218
  disturbances during surgical care, symposium, USPHS, 1575
METALS: See also Aluminum; Gold; Iron; Lead; Zinc
  coated clothing, to protect against heat from fire, [Buettner] *737
  dermatitis from jewelry, 725
METAPLASIA
  myeloid, [Block] 413—C
METASTASES: See Cancer
METER Mask: See Masks
METHADONE
  treatment of withdrawal symptoms in drug addiction, 1601
METHA-MERDIAZINE, N.N.R. (McNeil) 625
METHAMPHETAMINE hydrochloride, N.N.R. (Lilly), 549
METHAPYRILENE HYDROCHLORIDE
  treatment of Parkinson's disease, [Effron & Denker] *6
METHEMOGLOBIN
  carbon monoxide poisoning, 1601
METHEMOGLOBINEMIA
  nitrates cause of, [Rosenfield] 1125—ab
  nitrates in well water cause of, in infants, Minn., 1577
METHENAMINE
  mandelate in large doses in chronic cystitis, 812
METHONIUM
  medical sympathectomy in hypertension with, 776; [Turner] 1310—ab; [Saville] 1311—ab; [Campbell] 1592—ab
METHYLBENZETHONIUM CHLORIDE
  N.N.R. (description), 548; (Homemakers) 548
METHYL-BIS (Beta-Chloroethyl) Amine Hydrochloride: See Nitrogen Mustard
METHYLCELLULOSE, N.N.R. (description), 761; (Chilcott) 761
METHYL CHLORIDE
  danger from drinking fluid of bubble Christmas tree lights, 1601
METHYLENEBIS (Hydroxycoumarin): See Dicumarol
METHYLMERCAPTAN
  odor of urine after eating asparagus, 1140
METHYLOL RIBOFLAVIN, N.N.R., (description) 624; (Endo) 624
METHYLROSANILINE
  effect on cornea, 511
METHYL TESTOSTERONE: See Androgens
METHYLTHIOURACIL
  N.N.R. (description) 623; (Organon) 623
  thyroid tumor induced with, [Doniach] 1519—ab
  toxicity, arteritis after treatment with, [Meyler] 1038—ab
  treatment combined with propyl thiouracil in thyrotoxicosis, [Poate] 716—ab
  treatment of thyrotoxicosis, [Iversen] 1039—ab
METHYL VIOLET: See Methylrosaniline
METROPOLITAN Life Insurance Co. (discontinues home nursing service), 560
METYCAINE HYDROCHLORIDE, 1%, N.N.R. (Lilly); 928
MEYER, KARL, fellowship to honor, Chicago, 770
MEXICO
  anti-rabies mass vaccination of dogs, 1195
MICKLE Fellowship: See Fellowships
MICROORGANISMS: See Bacteria
MICROSCOPY
  dark field studies on erythrocytes, [Haenel] 428—ab
MICROTONE
  ADC Audiometer, Model 53-C1, 1375
  "Classic" Hearing Aid, Model T9, 1093
  Model 15 Hearing Aid, 928
MIDCENTURY White House Conference, 1096—E; 1380; 1167—E
MIDDLE Age: See Old Age
MIDWEST All-Metal Humidifier, Model 100, *103
MIDWIFERY: See Obstetrics
MIDWIVES
  licensing, state laws on (Bureau report), 861
MIGRAINE: See also Headache
  menstruation accentuates, 887
  of biliary origin, surgical possibilities in, [Mallet-Guy] 348—ab
  ophthalmoplegic, [Patrikios] 338—ab
  sudden sensation of rotation of objects, 1326
MILBANK Fund: See Foundations
MILITARY: See also Armed Forces; Army, U. S.; Aviation, U. S Air Force; Korean War; World War II
  A. M. A. Section on, applications for establishing considered by Council, 667; (approved) 1377—E
  Association of Military Surgeons of United States (meeting), 773; 1181—E
  Citations: See Korean War, Heroes; World War II, Heroes
  manpower, committee, Ind., 401
  Preparedness: See Medical Preparedness
MILK
  borne immunity against certain virus diseases, 1379—E
  allergy, painful shoulder from, [Castex] 963—ab
  buttermilk and cheese: how to neutralize effect of penicillin on, 726
  factor in breast cancer, [Horne] 1307—ab
  human, antibiotics excreted in, harmful to infant? 1321
  ingestion increases secretion from respiratory mucous membrane? 1018
  to control vomiting caused by aureomycin, [Bartholomew] 195—ab
MINERAL OIL: See Petrolatum, liquid
MINERALS: See Gold; Iron; Lead
MINERS
  nystagmus, psychiatric aspects, [Stern] 585—ab
  United Mine Workers, Dr. John T. Morrison, new medical director, 476
MISCARRIAGE: See Abortion
MISSION: See Medical Mission
MISSISSIPPI
  medical student in, [Voskamp] 186—C
MITE
  infestations prevented with repellents, 1321
MITRAL VALVE
  stenosis, surgical treatment, especially commissurotomy, [Glover & others] *1052
  stenosis, valvulotomy for, [Baker] 125—ab
MOBILIZATION: See Medical Preparedness
MOISTAIRE Heat Therapy Unit, Model 420-6, 762
MONARCH Brand Dietetic Pack fruits and vegetables, 1092
MONILIASIS
  Candida albicans, yeast in gastrointestinal tract, treatment, 211
  disseminated, [Parrillo] *748
  pulmonary, 726
MONONUCLEOSIS, INFECTIOUS
  Bell's palsy and, 1326
  diagnosis, differentiating from virus pneumonia, [Reimann] *81
  recurrences in, [Kaufman] 870—ab
MONOXIDE: See Carbon Monoxide
MOORE Research Lecture: See Lectures
MORAL Code: See Ethics, Medical
MORBIDITY: See Disease; Tuberculosis
  Statistics: See Vital Statistics
MORPHINE: See also Apomorphine
  addiction, [Isbell] 1124—ab
  increased sensitivity to, in anoxia, [Meyler] 1522—ab
  use in prolonged labor, 974
MORTALITY: See Accidents, fatal; Death; Infants; Maternity mortality; Physicians, deaths; Vital Statistics; under names of specific diseases
MORTICIANS: See Undertakers
MOSCHCOWITZ SYNDROME, [Goldenberg] 1126—ab
MOSQUITOES
  of Eastern Colombia, 1109
MOTHERS: See Maternity; Pregnancy
  Milk: See Milk, human
MOTION PICTURES: See Moving Pictures
MOTION SICKNESS, [Harbert] 1309—ab
MOTOR VEHICLES: See Automobiles; Medicolegal Abstracts at end of letter M
MOUTH: See also Cheek; Teeth; Tongue
  Gangrene: See Stomatitis, gangrenous
  complications of chloramphenicol therapy, [Williams] 1510—ab
  Intra Oral and Pharyngeal Structure and Their Movements, (film review), 1507
  Mask. See Mask
  Temperature by: See Temperature, Body
  tumors, Malignant Oral Tumors, (film review), 784
  ulcers in, 1419
MOVING PICTURES: See also Television
  A.M.A. Committee on Motion Pictures (report on film library; film source file; special film projects), 659
  "M.D.—The U. S Doctor," 640
  medical, educational at medical school in [illegible] 021
  [illegible] EDICAL (REVIEWS)
  [illegible] Encephalitides, 950
  Behind the Menu, 1284
  Bone Bank, 202
  Choosing for Happiness, 1201
  City of the Sick, 572
  Diagnosis of Uterine Malignancies, 1400
  Ears That Hear, 335
  Effects of Hemidecortication in the Dog, 868
  Effects of Metallic Ions on Osmotic Disturbances on the Heart, 950
  Gastrointestinal Cancer: Problem of Early Diagnosis, 708
  Guardians of Our Country's Health, 1024
  Heart, 784
  Heart-Lung Preparation, 202
  Hospital Food Service Personnel Training, 202
  Human Beginnings, 1507
  Hypnotic Behavior, 335
  Intra Oral and Paryngeal Structure and Their Movements, 1507
  It Takes All Kinds, 1201
  Johnny Green in "His Fighting Chance," 335
  Laboratory Diagnosis of Tuberculosis, 1507
  Life Cycle of Diphyllobothrium Latum, 1024
  Living with Limitations, 572
  Malignant Oral Tumors, 784
  Marriage Today, 1201
  Medical Examination, 868
  Nurse (The), 868
  Obstetric Roentgenography, 1115
  Place in the Sun, 1400
  Preface to a Life, 781
  Resection of Vagus Nerves: Transthoracic Approach, 572
  So Much for So Little, 572
  Streptomycin Drugs in Treatment of Tuberculosis, 335
  Subcutaneous Blood Flow in the Bat, 1115
  This Charming Couple, 1201
  Ultrasound in Medicine, 784
  Unconscious Motivation, 335
  Who's Boss? 1201
  Your Friend in Blue, 1115
  Your Voice, 784
MUCIN
  treatment of peptic ulcer, [Hardt] 571—ab
MUCOUS MEMBRANES See also Endometrium; under specific organs as Stomach
  dryness of, Sjögren's secreto-inhibitor syndrome, [Touraine] 350—ab; Cooperman] 578—ab
MULTIPHASIC Screening: See Diagnosis
MULTIPLE Births. See Twins
MUMPS: See Parotitis, Epidemic
MURACIL, N.N.R (description), 623, (Organon), 623
MURDER
  homicide rate decreases, 559
MURDOCK, THOMAS P., honored, 1384
MUSCLES: See also Fascia; Tendons
  Cardiac: See Myocardium
  Cramps: See Cramps; Spasm
  disease, myopathy after menopause, effects of cortisone, [Shy & others] *1356
  disorders, effects of cortisone in, [Shy & others] *1353
  Dystrophy: See Dystrophy
  electromyography in diagnosis of neuromuscular disorders, [Huddleston] 417—ab
  electromyography in neurology, [Sargent] 271—ab
  in poliomyelitis, [Denst] 1302—ab
  Inflammation (Multiple): See Dermatomyositis
  ocular, diagnosis of multiple paralyses, [Krewson] *534
  poliomyelitis virus in, 746—ab
  psoas, tuberculous abscess, [Hoover] 1127—ab
  scaleniotomy in scalenus syndrome, [Junge] 879—ab
  Spasm: See Poliomyelitis; Spasm; Tetany
  stimulator, Medcotronic, Model 50, 1656
  Strength, Decrease of: See Myasthenia Gravis
  tonus, simple ergometers to measure grasp (grip), [Wainerdi] *619
  transplantation of erector spinæ in poliomyelitic hip deformity, [Barr] *813
  tuberculosis of thoracic wall, [Hensel] 1315—ab
MUSCULAR Dystrophy Research Foundation: See Foundations
MUSEUM: See also Health museum
  models on reproduction available, Ohio, 1491
MUSIC
  in hospital and operating room, [Pickrell] 1407—ab
MUSTARD, Nitrogen: See Nitrogen Mustard
MYALGIA
  Epidemic: See Pleurodynia, Epidemic
MYANESIN: See Mephenesin
MYASTHENIA GRAVIS: See also Dystrophy, muscular
  diabetes mellitus and, [Perry] 707—C
  thymoma with, [Derow] 1516—ab
  treatment, cortisone, [Shy & others] *1356
  treatment, OMPA, 1419

MYCOBACTERIUM Tuberculosis: See Tubercle Bacillus
MYCOSIS: See also Actinomycosis; Blastomycosis; Coccidioidomycosis; Moniliasis
  disseminated disease, [Parrillo] *747
  fungoides, effects of ACTH and cortisone, [Taylor & others] *1061
  of prostate, 80
  pulmonary mycotic cysts, [Brea] 718—ab
  treatment, undecylenic acid, N N.R (description) 761; (Wallace & Tiernan) 761
MYDRIATICS
  dilation of pupil: use of cocaine hydrochloride, 1536
MYELITIS See Encephalomyelitis; Poliomyelitis
MYELOID metaplasia, [Block] 413—C
MYELOMA
  multiple, ACTH for , [Taylor & others] *1061
  multiple, radioactive isotopes for, [Lawrence] 787—ab
  plasma cell, ACTH for, [Pearson & Eliel] *1351
MYIASIS
  screwworm infestation in man, [Taylor] 870—ab
MYOCARDITIS
  trypanosomal chronic, [Chiaverini] 502—ab
  in poliomyelitis, [Spain] 1102—ab
MYOCARDIUM
  infarction, anticoagulants in, [Rose] 208—ab
  infarction· external rupture of heart, [Bishop] *757
  infarction, neurologic syndromes due to, [Foscarini] 718—ab
  infarction, rupture of interventricular septum, [Naieff] 1516—ab
  infarction, shoulder pain after coronary attack, 1321
  infarction, subendocardial, [Yu] 415—ab
  infarction, treatment, 100% oxygen, [Russek & others] *373
  myocardosis with liver cirrhosis, [Oppenheim] 1132—ab
  subendocardial necrosis, [Horn] 571—ab
MYOGRAM, electro: See Muscles
MYOSITIS
  Epidemic: See Pleurodynia, Epidemic
  Multiple: See Dermatomyositis
MYOTONIA Atrophica: See Dystrophy, myotonica
  Dystrophica: See Dystrophy, muscular
MYVIZONE: See Amithiozone

MEDICOLEGAL ABSTRACTS

AUTOPSIES
  court's right to authorize, 1117
  exhumation of body to permit, 1117
BLOOD
  paternity; blood grouping tests to determine, 573, 708, 1117
  self-incrimination in relation to tests, 187
  transfusion, death of patient; liability of hospital, 202
CHILDBIRTH
  prenatal injuries; liability for, 785
CHIROPRACTIC
  "as taught in chiropractic schools", 411
  drugs, right of practitioner to use, 411
  hospitals, license obtainable on compliance with statutory requirements, 1101
  hypodermics, right of practitioner to administer, 414
  licenses; fraud and deception; practice of medicine and surgery, 1281
  licenses, revocation; causes; determinable by legislature, 1281
  licenses, revocation; causes; specific enumeration followed by general language, 1281
DEAD BODIES
  exhumation for autopsy purposes, 1117
DENTISTRY
  injunction; restraint of violations, 785
  offices, restrictions on ownership valid, 785
DIABETES
  sanipractic; drugless treatment, 1401
DRUGLESS HEALERS. See also particular drugless healers
  as expert witnesses, 1117
  "doctor", right to use title, 1117
  malpractice, standards applicable to, 1117
  scope of practice; duty to call physician, 1117
DRUNKENNESS
  chemical tests; admissibility in evidence, 66
EMBALMERS: See Undertakers
EVIDENCE· See also Malpractice
  blood grouping tests; paternity, 573, 708, 1117
  lie detectors; admissibility of testimony obtained by, 573
  scientific tests; drunkenness, 66
  scientific tests; lie detectors, 573
  scientific tests; *paternity, 573, 708, 1117*
  scientific tests, blood stains, 487
  witnesses, lay; *undertaker's testimony* as to cause of death, 202
EXHUMATION: See Dead Bodies
HOSPITALS, CHARITABLE
  apparatus, liability for selection of, 487
  burns, electric light bulb, 487
  employees; selection of, 187
  liability in general, 187
HOSPITALS, IN GENERAL
  chiropractic; license obtainable on compliance with *statutory requirements*, 1101

Medicolegal Abstracts—Continued
HOSPITALS IN GENERAL—Continued
  laboratory; diagnosis based on mistake by, 66, 202
  licensure; powers of state board of health, 1401
  records; admissibility in evidence, 950
  residents; liability for negligence of, 66
  transfusion; mistake of laboratory as to type of blood, 202
INJUNCTIONS
  dentistry, restraint of unlawful practice, 785
INJURIES
  prenatal; liability for, 785
INSULIN
  diabetes; drugless treatment, 1101
INSURANCE, ACCIDENT
  vaccination; death following, 708
INTOXICATION· See Drunkenness
LIE DETECTOR
  admissibility in evidence, 573
MALPRACTICE
  diabetes; drugless treatment, 1101
  diagnosis; operation performed on erroneous hospital laboratory analysis, 66
  drugless healers; as expert witnesses in general realm of medicine and surgery, 1117
  drugless healers; death following ruptured appendix, 1117
  drugless healers; standards of care applicable, 1117
  evidence; res ipsa loquitur, 1021
  evidence; witnesses, experts; nonsectarian physician *may testify concerning sectarian* practice, when, 1117
  residents; liability for negligence of, 66
  sanipractic; diabetes; drugless treatment, 1101
  sanipractic; standards by which judged, 1401
  skill and care; standards; sectarian healers, 1401
MASSAGE
  definition of term, 66
  electric vibrator; use of as constituting, 66
MEDICAL PRACTICE ACTS
  classification of schools of healing; validity, 1200
MORTICIANS: See Undertakers
MOTOR VEHICLES
  drunken driver; chemical tests; voluntary submission, 66
OSTEOPATHY
  "as taught and practiced in osteopathic schools," 1200
  drugs; right of practitioner to use, 1200
  schools; delegation of legislative authority to, 1200
  scope of practice in general, 1200
  surgery; right of practitioner to use, 1200
PATERNITY
  blood grouping tests to determine: right of jury to disregard results, 573, 708, 1117
SANIPRACTIC
  diabetes; drugless treatment, 1101
SMALL POX
  vaccination; death in relation to accident insurance, 708
UNDERTAKERS
  cause of death; right to give testimony, 202
VACCINATION
  small pox, death in relation to accident insurance, 708
WORDS AND PHRASES
  accidental means", 708
  "as taught in chiropractic schools", 411
  "as taught and practiced in osteopathic schools", 1200
  "deception or fraud in the practice of chiropractic ', 1281
  "massage", 66

N

N N R : See under names of specific products
NAILS
  cancer (primary), [Russell] *19
  white since birth, 1110
NARCOANALYSIS
  discussed by Congress of Catholic Physicians, Italy, 256
NARCOLEPSY· See Sleep disorders
NARCOTICS See also Morphine
  addiction, [Anslinger] 333—C
  addiction, withdrawal symptoms, use of *methadone, 1601*
  poisoning, centralized therapy, [Clemmesen] 351—ab
  state laws on (Bureau report), 651, 863
  violations, Va , 1386
NASAL· See Nose
  Sinuses· See Sinuses, *Nasal*
NASOPHARYNGITIS: See Colds
NATIONAL: See also American, International; list of Societies at end of letter S
  Academy of Sciences recommend food protection advisory committee, 819—E
  Advisory Committee to be established by President, 551
  Association for Mental Health, Inc , three groups merge to form, 910
  Association of Science Writers: (press and the patient) [Boles] *361
  Bureau of Standards, (Dr. Frederick W. Coe appointed staff physician), 1012
  Cancer Hospital of America, temporary injunction prevents disposal of funds, 1577

NATIONAL—Continued
  Cancer Institute, (summary of cancer control facilities), 1188
  Conference on Aging, (Aug 13-15, 1950) 46—E; [Weiss] 919—C
  Conference on Rural Health, 1950, 662
  Congress of Internal Medicine (reports on familial hemopathy) 566
  Council to Combat Blindness (launches research program), 1016
  Defense: See Armed Forces; Civilian Defense; Medical Preparedness
  Education Program of A M A.: See American Medical Association
  Emergency, Joint Committee on Medical Education in Time of, (statement adopted by A M.A. Council and Association of American Medical *Colleges, 1095—E; 1111*
  Emergency Medical Service, A M A. Council on: See American Medical Association
  Formulary, London, 63
  Health Council (appointment: Philip E Nel*bach), 855*
  Health Service, England, 62; (Granny racket; statement of Sir Heneage Ogilvie before Western Surgical Association) [Koontz] 261—C (free life saving drugs, Australia), 706; (clerical work of a doctor's surgery), 1197; (free medicine in England under) [Judson] 1586—C
  Hearing Aid, Vanity Model 506, 1093; (Ultrathin Model 501), 1375
  Heart Institute: See *Heart*
  Institute of Mental Health, (federal grants announced), 906; (research on diabetes and personality), 1190
  Institutes of Health: See Health
  Letter Writing Week, 932—E
  Medical Congress (11th), Turkey, 1392
  Multiple Sclerosis Society, (material available; request registration of patients), [Traeger] 919—C; (Dr. Hinton Jonez Method), 1533
  Nursing improvement program for next 3 years financed by Kellogg Foundation, 1194
  Science Foundation: See Foundations
  Security Resources Board, 322; 395—E; 554; 650; 692—E; 1487; 1571
  Service Life Insurance for doctors returning to service, 1571
NATIONS United: See United Nations
NATUROPATHS
  licensing, state laws on (Bureau report), 864
NAUSEA: See Migraine; Motion Sickness; Vomiting
NAVY, UNITED STATES: See also Armed Forces
  Boone (J. T.) retires, 1382
  Committee on Medical Sciences membership changes, 1489
  deferments, general policies and procedures, 51
  medical officers (former), status, 937—OS
  medical problems encountered in undersea craft, [Pugh] *230
  medical reserve officers, 215
  medical school library renamed: Edward Rhodes Stitt Library, 1190
  reserve officers on duty with Army, 1489
  reservists, 551
  ships doctors wanted by, 1271
  women physicians in, [Swanson] 65—C
NECK. See also Lymphatic System; Throat
  cancer, tubed pedicle transplant for, [Catlin] 1307—ab
  pain and rocker spine, 598
NECROLOGY: See Deaths at end of letter D
NECROPSIES: See Autopsies
NECROSIS· See Bones; Liver; Pancreas
NEEDY: See Medically Indigent
NEGROES
  hereditary spherocytic anemia in, [Butterworth] 1401—ab
  medical students, *119
  mixed matings, "reversion to black" is mythical 1118
NEMATODE
  endophthalmitis causes massive separation of retina, [Heath] *1148
NEO-IOPAX, N N R (Schering), 385, 928
NEOMYCIN
  antimicrobial properties, [Waksman] 712—ab
  toxicity· deafness, [Carr & Pfuetze] 65—C
  treatment of plague, [Meyer] *981
NEOPLASMS: See Cancer; Sarcoma; Tumors; under region or organ affected
NEOSTIGMINE
  chronaxia and curare in man, Brazil, 1282
  treatment plus atropine sulfate for bite of black widow spider, [Holloway] 1305—ab
NEPERA Chemical and A M A sponsor luncheon for medical editors, 551—E
NEPHRECTOMY: See Kidneys excision
NEPHRITIS
  glomerular, acute, procaine in, [Goluboff] 961—ab
  glomerular, in children, combined penicillin and antihistamine for, [Baffi] 1131—ab
  glomerular, in scarlet fever, [Weinstein] 714—ab
  Hypertensive Chronic Vascular: See Nephrosclerosis, arteriolar
  treatment: induced measles, *211*
  Tuberculous: See Kidneys, tuberculosis
  vaccinal, [Porge] 275—ab

- NEPHROLITHIASIS: See Kidneys calculi
- NEPHRO-OMENTOPEXY, [Rudler] 1132—ab
- NEPHROSCLEROSIS
  - arteriolar, pulmonary changes in uremia, [Bass] *819
- NEPHROSIS: See Kidneys disease
- NERVES: See also Nervous System
  - Anesthesia: See Anesthesia
  - Blocking: See Nervous System, sympathetic
  - Deafness: See Otosclerosis
  - Ganglion: See Ganglion
  - gases, medical problems in chemical warfare, [Wood] *606
  - in poliomyelitis, [Denst] 1302—ab
  - optic, choked disk and other types of edema (papilledema), [Leinfelder] *919
  - optic, failing vision caused by bony spike compressing, [Falconer] 207—ab
  - optic, retrobulbar neuritis and disseminated sclerosis, [Hyllestad] 1010—ab
  - Paralysis: See Paralysis
  - phrenic, electrophrenic respirator in acute bulbar poliomyelitis, [Sarnoff & others] (correction), 252
  - phrenic, temporary paralysis in pulmonary tuberculosis, [Michaelis] 318—ab
  - Reflex: See Reflex
  - Roots: See also Guillain-Barre Syndrome; Neuronitis
  - roots, motor neuron disease, cortisone for, [Shy & others] *1355
  - Sciatic: See Sciatica
  - Surgery: See under subheads of Nerves; Neurosurgery
  - Syphilis: See Neurosyphilis
  - trigeminal cardiac reflex in circulatory diseases, [Brauch] 589—ab
  - vagotomy and gastric resection in duodenal ulcer, [Stevens] 1208—ab
  - vagotomy, deaths after, [Postlethwait] 206—ab
  - vagotomy for duodenal ulcer, [Crile] 1518—ab
  - vagotomy for peptic jejunal ulcer, [Mandl] 1216—ab
  - vagotomy, gastric ulcer after, [Morrissey] 1310—ab
  - vagotomy, influence on peptic ulcer, [Walters] 788—ab
  - vagotomy, operative accidents during 325 vagotomies, [Wilkins] 339—ab
  - vagus, Resection of Vagus Nerves: Transthoracic Approach (film review), 572
- NERVOUS SYSTEM: See also Brain; Ganglion; Nervous System, Sympathetic; Spinal Cord
  - central, and obesity, [Gilbert-Dreyfus] 430—ab
  - Disease: See also Encephalomyelitis
  - disease, electromyographic diagnosis, [Huddleston] 417—ab
  - disorders, effects of cortisone in, [Shy & others] *1353
  - Surgery: See subheads under Nerves; Neurosurgery; Sympathectomy
  - Syphilis: See Neurosyphilis
  - tumors, radiodye to diagnose and localize, [Davis & others] *1421
- NERVOUS SYSTEM, SYMPATHETIC
  - blocking complications during, [Bourner] 799—ab
  - blocking of cervical sympathetic in hyperemesis gravidarum, [Paschen] 719—ab
  - blocking of cervical sympathetic with procaine after cerebral thrombosis, 1533
  - blocking of, in tuberculous cavities, [Witte] 1315—ab
  - cholinergic and anticholinergic drugs, [Grimson] 1211—ab
  - reflex dystrophy of upper extremity (hand-shoulder syndrome), [Bayles & others] *537
  - personality classification: sympatheticotonics and parasympatheticotonics, 1536
  - Surgery: See Sympathectomy
  - tumors, sympathicoblastoma of stomach, [Villarreal] 276—ab
- NEUMAN'S Salt Free Bakery Goods, 763
- NEURALGIA
  - cervical, 511
- NEURILEMMOBLASTOSIS, [Inglis] 786—ab
- NEURITIS
  - diabetic (correction), 477
  - penicillin induced, 811
  - polyneuritis, inject Vitamin B_{12}, [Menof] 1521—ab
  - Retrobulbar: See Nerves, optic
  - Sciatic: See Sciatica
- NEURODERMATITIS
  - atopic dermatitis, 888
- NEUROINTESTINAL Asthenia: See Asthenia
- NEUROLOGY: See also Nerves; Nervous System; Neur-
  - American Board of: See American Board
  - Batrow Neuromuscular Stimulator, Model A, 929
  - electromyography in, [Sargent] 271—ab
  - Institute on Neurological Diseases and Blindness, 248
  - lesions in newborn infants, [Keith] 1406—ab
  - [illegible] neurysm of
  - [illegible]
  - residencies in, at VA, 415
  - sequels of Rh sensitization, [Evans] 272—ab
  - Surgery in: See Neurosurgery
  - syndromes due to myocardial infarction, [Foscarini] 718—ab
- NEURONITIS
  - treatment, BAL, [Nielsen] 788—ab
- NEURONS: See Nerves, roots
- NEUROSIS
  - anxiety, electrocardiographic changes, [Rørvik] 879—ab
  - urologic conditions based on, [Cook] *1121
- NEUROSURGERY: See also Brain surgery; Ganglionectomy; Nerves; Sympathectomy
  - American Board of: See American Board
  - Effects of Hemidecortication in the Dog (film review), 868
  - nontraumatic subarachnoid and cerebral hemorrhage, [Ley] 1314—ab
- NEUROSYPHILIS
  - treatment, aureomycin orally [Kierland] 1510—ab
- NEUTROPENIA: See also Agranulocytosis
  - splenic (primary) and hypersplenism, [Tzanck] 1010—ab
- NEVUS
  - flammeus, treatment, 1602
- NEW GROWTH: See Tumors
- NEW JERSEY
  - Medical-Surgical plan, 1273
  - report on chiropractic, (Bureau report), 653
- NEW MEXICO
  - plague in; penicillin treatment ineffective, [Link] *375
- NEW YORK
  - Academy of Medicine, (standards for inhalation therapy), *25; (radio broadcast: "For Doctors Only"), 558; 1192; (*Louis Livingston Seaman Fund available*) 698; (requests abstracts of clinical research papers) 1491; (plea to reserve television channels for education) 1491
  - Health Insurance Plan of Greater New York, [Shapiro] 412—C; [Baehr] 485—C
  - Medical Center: See Medical Center
  - University, (Dr. William Crawford Gorgas elected to Hall of Fame) 1272; (admissions committee reorganized) 1385
- NEWBORN: See Infants, Newborn
- NEWSPAPERS: See also Journals
  - A.M.A. advertising in, against socialized medicine, (Dingell's misuse of Congressional Record) 767; (CIO protests against) 933—E
  - A.M.A. Press Relations, 638
  - *exposure of quacks by metropolitan dailies*, 761—E
  - press and the patient, [Boles] *361
  - what community expects of the doctor, [Seltzer] *1573
- NICOLAS-Favre-Durand Disease: See Lymphogranuloma, Venereal
- NICOTINE: See also Tobacco
  - vasoconstriction released with, [Crowley] 424—ab
- NICOTINIC ACID: See Acid, nicotinic
- NIELSEN-Drinker-Schafer Method: See Schafer
- NIKETHAMIDE
  - treatment vs. amphetamine in barbiturate intoxications, [Riishede] 351—ab
- NIPPLE: *See Breast*
- NITRATES
  - methemoglobinemia due to, [Rosenfield] 1125—ab
  - in well water cause infants deaths, Minn., 1577
- NITROGEN
  - nonprotein, relation of creatinine to, in azotemic states, [Gaberman & others] *1246
- NITROGEN MUSTARD
  - cancer inducing agents, [Griffin & others] 571—C
  - treatment of lymphomas and leukemias, [Spurr] 415—ab
  - treatment of neoplastic adenopathy, [Abu-Jamra] 1040—ab
- NOBEL Prize: See Prizes
- NODULES
  - painful, 511
  - Subcutaneous: See Rheumatic Fever
- NOISE: See also Sound
  - hearing loss from acoustic trauma, 359
- NOISES in the Ear or Head: See Tinnitus
- NOMENCLATURE: See Terminology
- NOR-EPINEPHRINE: See Arterenol
- NORISODRINE sulfate 10% and 25% N.N.R., (Abbott); 927
- NORSK Medicin: See Journals
- NORTHWESTERN UNIVERSITY
  - new program for nurses, 1384
- NORWEGIAN
  - Merchant Marine, diet of, 257
  - National Antituberculosis Association, 40th anniversary, 1108
- NOSE
  - Accessory Sinuses: See Sinuses, Nasal
  - beryllium granuloma [Kazanjian] 1407—ab
  - cardiovascular efficacy of intranasally administered mecholyl, [Nathanson] 575—ab
- NOSE—Continued
  - cocainization of turbinate and nasal fossa in labor, [Valle] 428—ab
  - Colds: See Colds; Hay Fever; Rhinitis
  - nocturnal postnasal drip, 1420
  - surgery, [Johnston] *977
- NOVOCAIN: See Procaine Hydrochloride
- NUCLEAR Power: See Atomic Energy
- NUCLEI RAYS
  - heavy, beyond 70,000 feet altitude, 1424—ab
- NUCLEUS Pulposus: See Spine, intervertebral disk
- NUMBNESS
  - in extremities, 358
- NURSES AND NURSING
  - American Red Cross Home Nursing Program, 699
  - duties in management of fluid balance problems, [Scribner & others] *1167
  - medical careers conference, Pa., 1193
  - national, improvement program, for next 3 years financed by Kellogg Foundation, 1194
  - Northwestern University program, 1384
  - Nurse (film review), 868
  - nursing service discontinued by Metropolitan Life Insurance Co., 560
  - nursing service in 1970, Sweden, 945
  - school of, Presbyterian Hospital, Chicago, 1490
  - state laws on (Bureau report), 861
  - student admissions reach 5 year record, 1386
  - supply, shortage, Sweden, 257; 1021
  - supply, survey of resources, N. Y. City, 939
  - tuberculosis immunization with BCG, [Gergsma] 799—ab
  - Your Friend in Blue (film review), 1115
- NUTRITION: See also Diet; Food; Infants, feeding
  - American Institute of, solicits nominees for nutrition awards, 910
  - A.M.A. Council on Foods and Nutrition: See American Medical Association
  - Deficiency: See also Vitamins
  - deficiency relation to antibody production, [Balch] 312—ab
  - dental caries and during and after World War II, [Alexander] 317—ab
  - HANDBOOK of NUTRITION (deficiencies of water-soluble vitamins, [Youmans] *34; *307; *386
  - Nutrition Foundation, Inc. grants aid for research, 1193
  - problems after resecting small intestine for regional ileitis, [Kiefer & Arnold] *903
  - undernutrition of mother and size of baby at birth, [Dean] 272—ab
  - Vitamins in: See Vitamins
- NYSTAGMUS
  - miners', psychiatric aspects, [Stern] 585—ab
  - spontaneous, 285

O

- OMPA
  - treatment of myasthenia gravis, 1419
- OATMEAL
  - Beech-Nut Strained, 763
- OBESITY
  - central nervous system and [Gilbert-Dreyfus] 430—ab
  - treatment, dextroamphetamine sulfate, dried thyroid gland and placebo, [Edwards] 1593—ab
- OBITUARIES: See list of Deaths at *end of* letter D
- OBSTETRICS: See also Abortion; Cesarean Section; Labor; Midwives; Pregnancy; Puerperium
  - American Board of: See American Board
  - Anesthesia in: See Anesthesia
  - causes of fear among patients, [Bloss] *1358
  - graduate conference in, televised from Loyola U., 54
  - Obstetric Roentgenography (film review), 1115
  - psychosomatic aspects, [Valle] 428—ab
  - residency training in, 772
- OCCUPATIONAL
  - *Dermatoses: See Industrial Dermatoses*
  - Disease: See Industrial Diseases
  - Health: See Industrial Health
- OCCUPATIONAL THERAPY
  - Johnny Green in "His Fighting Chance" (film review), 335
- OCULAR Symptons; Tests: See Eyes; Ophthalmology; Vision
- ODOR
  - of urine after eating asparagus, 1140
- OFFICERS: See Armed Forces; Army, U. S.; Medical Preparedness; Navy, U. S.
- OGILVIE, SIR HENEAGE
  - address to Hunterian Society on use of experience, 1264—E
  - statement before Western Surgical Association: Granny racket, [Koontz] 261—C
- OIL
  - Aspiration into Lungs: See Pneumonia, lipid
  - forced into finger, 1224
  - Mineral: See Petrolatum, liquid
- OKLAHOMA Medical Research Foundation: See Foundations

OLD AGE See also Physicians, veteran
  arthritic changes of, 1420
  fertile fields for general practitioner, [Casebolt] *599
  forced retirement of business executives at 65, [Unger] 1502—C
  fundus oculi in elderly patients without hypertension, [Vogelius] 876—ab
  hospital accommodation for, Copenhagen, 778
  immunizations in older persons, 1420
  Italian Society of Gerontology and Geriatrics established, 1393
  National Conference on Aging, Aug 13-15, 1950, 46—E, [Weiss] 949—C
  presbyacusia in, sex hormones effect, [Kroath] 588—ab
OMENTUM
  cysts, confusion with ascites, [Beaven & Kerr] *306
  nephro-omentopexy, [Rudler] 1132—ab
OMPHALOCELE See Hernia, umbilical
ONCHOCERCIASIS. See *Filariasis*
OOPHORECTOMY See Ovary surgery
OPERATING ROOMS See Surgery
OPERATION See Surgery, under names of specific organ and disease
  Early Rising after Operation See Convalescence
OPHTHALMIA
  Neonatorum See Conjunctivitis, infectious acute
OPHTHALMOLOGY · See also Eyes, Vision
  American Board of: See American Board
  at the midcentury, [Irvine] *1423
  history of, address of Duke Elder, 330
  International Congress of (16th), London, 330
OPHTHALMOPLEGIA · See Eyes, paralysis
OPIUM See Morphine
OPTIC Nerve See Nerves, optic
OPTICIANS
  kickbacks contrary to public policy, 47—E; 652
ORAL Cavity See Mouth
ORANGE JUICE
  Birds Eye Frozen Concentrated, 847
  for babies, Bib Brand, 847
ORATIONS See Lectures
ORCHIOPEXY
  bilateral, bilateral testicular tumors following, [Kaplan & Roswit] *1557
OREGON physicians not guilty of restraint of trade, 552—E, 555
ORGANIZATIONS. See Societies, Medical, list of Societies and Other Organizations at end of letter S
ORGANIZED LABOR See Industrial Trade Unions
ORGANIZED MEDICINE See American Medical Association, Societies, Medical
ORGANS See also Viscera, under names of specific organs as Heart, Stomach
  removed, shrinkage of, 726
  Weight of See Adrenals, Brain
ORIENTAL Sore See Leishmaniasis, cutaneous
ORNITHOSIS See also Psittacosis
  diagnosis (differential) from virus pneumonia, [Reimann] *81
ORTHOPEDICS See also Bones, Foot, Fractures
  acrylic prosthesis, 197
  Latin American congress of (first), 1016
  Surgery, American Board of See American Board
  surgery, frozen bone bank in, [Leonard] 1213—ab
  surgery, postgraduate course in, New York City, 56
ORTHOPTICS
  course in, Boston, 1492
OSSIFICATION: See Calcification
OSTEITIS
  deformans (Paget's disease), 1226
  fibrosa generalisata (Recklinghausen's disease) [Krauss] 1037—ab
  fibrosa, renal, [Dreskin] 1588—ab.
OSTEOCHONDRITIS
  Larsen-Johansson disease of patella, relationship to other forms, [Wolf] 425—ab
OSTEOGENESIS IMPERFECTA See Fragilitas ossium
OSTEOMYELITIS
  acute, penicillin treatment, [Graff] 878—ab
  hematogenous, intraarterial penicillin and Bier's passive hyperemia, [Marinaccio] 429—ab
  treatment, topical detergent antibiotic tergitol, [Grace] 1591—ab
OSTEOPATHY See Medicolegal abstracts at end of letter M
OSTEOPOROSIS
  postmenopausal, 358
  treatment, 1534
OSWALDO CRUZ INSTITUTE See Cruz
OTARION Hearing Aid, Models F-1 and F-2, 762
OTITIS MEDIA
  acute, dipenicillin in, [Nielsen] 1316—ab
  acute suppurative, effect of persistent penicillin therapy, [Jersild] 351—ab
  in infancy, [Carithers] 344—ab
  in newborn, [Esch] 348—ab
OTITIS MEDIA—Continued
  scarlet fever, roentgen therapy compared with other forms of treatment, [Bydal] 800—ab
  suppurative, interrupted penicillin therapy, *[Jersild] 1409*—ab
OTOLARYNGOLOGY
  American Board of See American Board
  modern trends of surgery and treatment in, [Johnton] *977
OTOSCLEROSIS
  hereditary deafness in, [Kopetzky] 1206—ab
  treatment, fenestration operation, results [Campbell] 1589—ab
OVARY
  cancer, palliative operation in, [Grünberger] 719—ab
  cancer papillary adenocarcinoma, 597
  hernia (sliding), ovarian ectopia with absence of vagina and single kidney in diabetic, [Beck] *462
  hilus cells and endometrium carcinoma, [Goldstein] 200—C
  surgery, breast cancer treated by oophorectomy [Raven] 498—ab
  tumors, Brenner, [Jondahl] 869—ab
OVEREXERTION: See Fatigue
OVERWEIGHT · See Obesity
OVERWORK See Fatigue
OXIMETER
  determination of circulatory velocity, [Callebaut] 717—ab
OXYCORTICOSTEROIDS
  urinary excretion in peptic ulcer, [Sandweiss & others] *1437
OXYGEN See also Pneumoperitoneum; Pneumothorax, Artificial
  consumption of patients on bedpan and commode, [Benton & others] *1143
  deficiency, air hunger, 1533
  deficiency, hypoxia and ascorbic acid excretion, [Krasno] 1404—ab
  deficiency in submarines, [Pugh] *232
  deficiency, increased sensitivity to morphine and barbiturates in, [Meyler] 1522—ab
  enriched atmosphere, premature infants response to, [Graham] 792—ab
  helium mixtures administration in inhalational therapy, *31
  in Blood See Blood
  Midwest All-Metal Humidifier, Model 100, *103
  Resp-Aid Oxygen Humidifier, Models 400 and 425, 929
  Tent and Croupette Humidity, *103
  tents, use in inhalational therapy, *26
  therapy administration, apparatus for, *25
  therapy in rheumatic carditis, [Taran] 711—ab
  therapy in surgery, [Karolinska] 800—ab
  therapy, mental changes with anoxemia, Eh measurements, [Williams] 333—C
  therapy, nasal administration in inhalational therapy, *27
  therapy (100%) in myocardial infarction and angina pectoris, [Russek & others] *373
OXYURIASIS
  vaginal infestation, 975

P

PR Doctor, story of, 639
PAGET'S DISEASE
  of Bones See Osteitis deformans
PAIN See also Backache, Headache, Neuralgia, Sciatica, under names of specific organs and regions as Abdomen, Neck
  contracture in poliomyelitis and, [Guyton] 339—ab
  in extremities numbness and tingling a variant, 358
  in foot, 1326
  in pericarditis simulates pain in coronary thrombosis, [Porter & others] *751
  over tibia in athletes, 359
  Precordial. See Angina Pectoris, Arteries, *coronary, Heart pain, Thrombosis, coronary*
  recurrent in penis and perineum, 211
  Relief of See also Anesthesia, Nervous System, Sympathetic, blocking, Sympathectomy
  relief of intractable pain, unilateral prefrontal lobotomy for, [Scarff] 581—ab
  Sciatic See Sciatica
PALESTINE. See Israel
PALSY
  Birth See Paralysis, cerebral
  Shaking See Paralysis agitans, Parkinsonism
PAN AMERICAN See also Inter-American; Latin American
  Conference of Leprosy, (3rd), 192
  Medical Confederation's *Revista de la Confederacion Medica Panamericana* approved by A M A, 695
  Sanitary conference, 251
PANAMA CITY
  hepatitis in recently tattooed service personnel, [Smith] *1074
PANCARDITIS
  rheumatic, cortisone in, [Bell] 954—ab
PANCOAST Syndrome · See Thorax tumors
PANCREAS. See also Diabetes Mellitus
  cancer, symptoms, treatment, [Poulsen] 349—ab
  cancer, symptoms (especially first) [Mathisen] 349—ab
  hormone (second) of carbohydrate metabolism produced in: *glucagon, [Gaede]* 1131—ab, (correction) 1275
  inflammation (acute), diagnosis especially in absence of diastasuria, [Riisfeldt] 349—ab
  inflammation (acute), mortality; prognosis, [Riisfeldt] 349—ab
  islands of Langerhans, cellular composition, [Becker] 273—ab
  lesions with ulcerative colitis, [Ball] 1305—ab
  necrosis (acute), [Franchini] 798—ab, [Roberts] 1118—ab
  Secretion See Insulin
PANCREATITIS · See Pancreas inflammation
PANNICULITIS, [Jones] 1407—ab
PANPARNIT See Caramiphen
PANTOPAQUE
  ethyl iodophenylundecylate, N N R, (description) 1464, (Lafayette) 1465
PAPAVERINE
  vasoconstriction released with, [Crowley] 424—ab
PAPER See *Articles; Newspapers*
PAPILLEDEMA · See Nerves, optic
PARA-AMINOBENZOIC ACID: See Acid p-aminobenzoic
PARA-AMINOSALICYLIC ACID: See Acid, p-aminosalicylic
PARACHUTE See Aviation
PARACIN, N N R, (Eaton), 385
PARAFFIN, Liquid See Petrolatum, liquid
PARAFFINOMA
  pulmonary (lipid pneumonia), [Berg] 1514—ab
PARAGANGLIOMA See Pheochromocytoma
PARALYSIS See also Hemiplegia
  Agitans See also Parkinsonism
  agitans, panparnit, diparcol and phenergan for, [Winther] 966—ab
  Cerebral See also Paralysis, spastic
  cerebral, center in Memphis (correction), 405
  cerebral, incidence, New York, 1103
  cerebral, institute, New York City, 403
  cerebral, Moody State School for Cerebral *Palsied* Texas, 56
  cerebral palsy clinics, (Texas) 403, (N D) 1014; (Wis) 1274
  cerebral palsy program in California, Place in the Sun (film review), 1100
  cerebral, Research Council of United Cerebral Palsy Associations, Inc, 1015
  cerebral, state legislation on (Bureau report), 654, 862
  facial (Bell's) and infectious mononucleosis, 1326
  facial (peripheral) [de Jong] 1586—C
  Induced of Diaphragm See Nerves, phrenic
  Infantile See Poliomyelitis
  Ocular · See Eyes, paralysis
  of distal jejunal loop after partial gastrectomy, [Reynolds] 957—ab
  Respiratory See Poliomyelitis, bulbar
  Spastic. See also Paralysis, cerebral
  spastic, cervical arteriovenous anastomosis for [McKhann] 1403—ab
  spastic (congenital), caramiphen hydrochloride in, [Jersild] 1037—ab
PARAMINYL maleate, N N R (*Buffington;* Smith-Dorsey), 928
PARANASAL SINUSES · See Sinuses, Nasal
PARAPHENYLENEDIAMINE
  medical aspects of hair dyeing, [Thomas] 1520—ab
PARASITES
  diseases, liver cirrhosis in, 185—E
  illness caused by, Sao Paulo, 779
  infection, eosinophilia in, Thorn test, [Hernandez Morales & others] *379
  Intestinal See Parasites
PARASMALLPOX See Alastrim
PARATHION
  pharmacology, toxicology, [Rohwer & Haller] *104
  toxic action, [Abrams] 1028—ab
PARATHYROID
  hyperparathyroidism, acromioclavicular changes in, [Nathanson] 875—ab
  hyperparathyroidism, surgical treatment, [Rienhoff] 488—ab
  renal osteitis fibrosa, [Dreskin] 1588—*ab*
  tetany, bilateral cataracts after, 809
  transplantation, [Bland] 1517—ab
  tumors, adenoma and renal calculi, [Kretschmer] 420—ab
PARATYPHOID
  treatment, chloramphenicol, (reply to Query in June 10 issue) [Heilmeyer] 598, [Mollaret] 1133—ab
  treatment, chloramphenicol, relapses with, [Laporte] 1595—ab
PAREDRINE See *Hydroxyamphetamine*
PARENTS · See *Maternity*

PARKINSONISM: See also Paralysis agitans
  treatment, antihistaminic and antispasmodic drugs evaluated, [Effron & Denker] *5
  treatment, RP 2987 (diparcol) and RP 3356 (parsidol) 1221
  treatment, rigidyl [Fog] 966—ab
  treatment, section of lateral column to counteract tremor, [Oliver] 72—ab
  treatment, trihexyphenidyl (artane) [Harris] 875—ab
  treatment, vitamin B_{12} or mephenesin (tolserol), 1601
PAROTITIS, EPIDEMIC (mumps)
  complicated by acute suppurative appendicitis, [Schaar] *1452
  deafness due to, 512
PARPANIT: See Caramiphen
PARROTS Fever: See Psittacosis
PARSIDOL
  treatment of parkinsonism, 1221
PARTURITION: See Labor
PAS: See Acid, *p*-aminosalicylic
PASTEURELLA tularensis Infection: See Tularemia
PATELLA: See also Knee
  Larsen-Johansson disease, [Wolf] 425—ab
PATERNITY: See Medicolegal Abstracts at end of letter M
PATHOLOGY: See also Disease
  American Board of: See American Board
  Armed Forces Institute of (Dr. Eaton made deputy director), 1190
  Association of Clinical Pathologists, summary of July meeting, England, 565
  licensure requirements for practice of, [Hall] *1256
  pathologists needed, 690—E
  Psychosomatic: See Psychosomatic Medicine
PATIENTS: See also Disease; Medical Service; Surgery; under names of specific diseases
  Chronically Ill: See Disease, chronic
  Convalescence: See Convalescence
  energy expended by, on bedpan and commode, [*Benton & others*] *1413
  home and family contacts of general practitioner, [Casebolt] *599; [Seltzer] *1573
  home care for prolonged illness, [Shindell] 70—ab
  Hospital: See Hospitals
  physicians office hours, Sweden, 705
  press and the patient, [Boles] *361
  private, in hospital, London, 63
  private, provision of medicine for, London, 63
  Transport of: See Ambulances
PAVLOV, IVAN PETROVICH, *centenary*, 1582
PEACHES
  Libby's Junior Foods, 763
  Monarch Brand Dietetic Pack Sliced, 1092
  Sacramento Brand Dietetic Pack, 549
PEARS
  Libby's Junior Foods, 847
  Sacramento Brand Dietetic Pack, 519
PECTUS EXCAVATUS (Funnel chest): See Thorax
PEDIATRICS: See also Children; Infants
  American Academy of (meeting, Chicago, Oct. 16-19), 560; (new Committee on Child Safety to reduce accidents in children), 192; 1015; 1183—E
  American Board of: See American Board
  fellowships in pediatric cardiology, Chicago, 1272
  International Congress of (6th) at Geneva, 777
  Lichenstein (A.), contributions to, Sweden, 257
  social, seminar of, Zurich, 778
PEMPHIGUS
  neonatorum, [Miller] 796—ab
PENCILS
  indelible, cause of eye injuries, [Passow] 428—ab
PENICILLIN
  "clarification phenomenon" new method for checking activity, Paris, 1019
  dosage, [Jensen] 1316—*ab*
  dosage (oral), absorption clinical use; discontinuous therapy, [Bunn & others] *1540
  dosage schedules, [Eagle] 1509—ab
  excreted in breast *milk*, danger to infant? 1324
  excretion of penicillin as renal function test, [Dorner] 273—*ab*
  G (mixed sodium and procaine) dipenicillin in acute otitis media, [Nielsen] 1316—ab
  G potassium for oral use, N.N.R., (Abbott; Parke, Davis; Premo; Squibb), 385
  G potassium for parenteral use, N.N.R. (Parke, Davis), 385
  G procaine, N.N.R. (Abbott; Premo; Strong Cobb), 385
  G procaine-potassium, N.N.R. (Strong Cobb), 385
  G procaine potassium in oil, N.N.R., (Pfizer), 928
  Procaine: See Penicillin G; Penicillin, treatment
  state laws on (Bureau report), 862
  supply, domestic production by months, [Boles] *362
PENICILLIN—Continued
  synergism and antagonism, [Bigger] 716—ab
  toxicity: neuritis, 811
  toxicity of carinamide, [Boger] 786—ab
  Treatment: See also Chickenpox; Colitis, ulcerative; Endocarditis; Osteomyelitis; Otitis Media; Plague; Scarlet Fever; Sycosis; Syphilis; Tongue; Tonsils; Typhoid
  treatment, combined with carinamide therapy, [Astaldi] 501—ab
  treatment, effects on hair, 811
  treatment, indiscriminate use in colds causes serious reaction, [Goldman] 1023—C
  treatment ineffective in Klebsiella pneumonia, [Nataro & others] *12
  treatment ineffective in plague, especially in New Mexico, [Link] *375
  treatment, inhaling aerosols in sinorespiratory infections, [Prigal & Molomut] *897
  treatment, inhaling aerosols, methods, *32
  treatment, interrupted, in suppurative otitis, [Jersild] 1109—ab
  treatment, intraarterial, in hematogenous osteomyelitis, [Marinaccio] 429—ab
  treatment, intramuscular and aureomycin orally, incompatible? 1419
  treatment of cows with penicillin; how to neutralize its effect on milk; production of buttermilk and cheese, 726
  treatment, penicillin-free interval between injections, [Robertson] 1509—ab
  treatment, oral, discontinuous therapy, [Bunn & others] *1510
  treatment plus antihistamine, in glomerulonephritis in children, [Baffe] 1131—ab
  treatment plus bismuth subsalicylate for syphilis, [Pardo-Castello] 1510—ab
  treatment plus hyaluronidase in endocarditis, [Moseley] 958—ab
  treatment plus streptomycin and sulfadiazine in brucellosis, [Anglesio] 1312—ab
  treatment plus streptomycin in endocarditis, [Hunter] *521
  treatment, procaine penicillin in oil and aluminum monostearate (PAM) in early syphilis, [Thomas] 787—ab
  treatment procaine penicillin inhibit effect of *sulfonamides? 1531*
  treatment, procaine, penicillin, plasma concentration after intramuscular and subcutaneous use, [Søbye] 351—ab
  treatment, recent trends, [Kirby] *233
  treatment, recurrence of gonorrhea after, 976
  treatment, resistance, Sao Paulo, Brazil, 779
  treatment, sodium and procaine penicillin in scarlet fever, [Jersild] 351—ab
  treatment, tetanus toxoid or tetanus antitoxin combined injection, 1225
  treatment to prevent ophthalmia neonatorum, [Berwind] 348—ab
  treatment, transplacental passage in pregnancy, [Grasset] 1315—ab
  treatment, use streptomycin in same syringe? *1419*
  treatment, vs. gamma globulin in scarlet fever, [Weinstein] 1405—ab
PENIS
  chronic cavernositis: Peyronie's disease, 974
  lesions, in general practice, [Hess & others] *602
  pain in, recurs every 2 weeks, 211
  surgery, plastic reconstruction of penile skin; implantation of penis into scrotum, [Goodwin & Thelen] *384
  swelling of, 438
PENNSYLVANIA: See Pittsburgh
  University of: See University
PENTAMETHONIUM: See Methonium
PENTAQUINE
  phosphate- and quinine sulfate- U.S.P., N.N.R. (description), 761; (Abbott) 761
  [illegible] .R. (description), *761;*
  [illegible] n
  [illegible] 1316—ab
  diagnosis masked by sympathectomy for hypertension, [Steinmann] 1314—ab
  etiology, gastric ulcers induced by histamine in beeswax, [Olovson] 493—ab
  gastric cancer relation to, [Seedorff] 588—ab
  gastric ulcerocarcinoma: surgical indication, [Dahl-Iversen] 588—ab
  hemorrhage, indication for surgical treatment [Begtrup] 963—ab
  hemorrhage (massive), [Porter] 339—ab
  perforated, associated with ACTH therapy, [Habif & others] *996
  psychosomatic aspects, [Wagner] 799—ab
  surgical treatment, deaths following vagotomy, [Postlethwait] 206—ab
  surgical treatment of chronic ulcers of stomach and duodenum, [Schwarz] 503—ab
  surgical treatment of duodenal ulcer with and without vagotomy, [Crile] 1518—ab
  surgical treatment, vagotomy, accidents during 325 operations, [Wilkins] 339—ab
  surgical treatment, vagotomy evaluated, [Walters] 788—ab
  surgical treatment, vagotomy, peptic ulcer after, [Morrissey] 1310—ab
PEPTIC ULCER—Continued
  surgical treatment, results of gastric resection and vagotomy, [Stevens] 1208—ab
  surgical treatment, vagotomy for jejunal ulcer, [Mandl] 1216—ab
  treatment, ACTH and cortisone, [Sandweiss & others] *1436
  treatment, aluminum hydroxide and magnesium trisilicate plus mucin, [Hardt] 574—ab
  treatment, banthine, [Winkelstein] 1501—C
  treatment, management, [Crile] 582—ab
PERFORATION: See Appendix; Peptic Ulcer
PERIARTERITIS
  fatal generalized, occurring during propylthiouracil therapy, [McCormick] *1153
  nodosa discussed at Association of Clinical Pathologists, 565
  nodosa, pulmonary cavitation due to polyarteritis, [Sandler & others] *751
PERICARDITIS
  adhesive, diagnosis [Eliasch] 1039—ab
  benign, nonspecific; [Porter & others] *749
  cholesterol, [Ada] 713—ab
  friction rub in, [Porter & others] *752
  pain in, simulates pain in coronary thrombosis, [Porter & others] *751
  tuberculous, surgical treatment, [Holman] 1120—ab
PERINEUM
  pain in penis and, recurs every 2 weeks, 211
PERIODICALS: See Journals
PERITONEUM: See also Omentum; Pneumoperitoneum
  Inflammation: See Peritonitis
  Intra-abdominal Hemorrhage: See Abdomen, hemorrhage
  irrigation, hypertensin in blood in artificial kidney, [Kahn] 1513—ab
  liquid petrolatum in, 1325
  surgery, plication for adhesions, [Ripstein] 954—ab
  surgery, plication in acute peritonitis, [Noble] 790—ab
  Tuberculosis: See Peritonitis, tuberculous
PERITONITIS
  acute: experience with plication, [Noble] 790—ab
  spreading, after perforation of appendix, [Eberle] 1133—ab
  tuberculous, streptomycin as adjunct in surgical treatment [Pitchford] 872—ab
PERMANENT WAVE: See Hair, permanent wave
PERNICIOUS ANEMIA: See Anemia, Pernicious
PEROXIDASES
  research on, by Hugo Theorell, 1020
PERSONALITY: See also Psychosomatic Medicine
  classification: sympatheticotonics and parasympatheticotonics, adrenocorticotropics and anterior pituitaries, 1536
  diabetes and, research by National Institute of Mental Health, 1190
  It Takes All Kinds (film review), 1201
  surveys in essential hypertension, psyche and blood pressure, [Palmer] *295
PERSPIRATION: See Sweat
PERTUSSIS: See Whooping Cough
PESTICIDES
  A.M.A. Committee on, 642
PESTOX III
  treatment of myasthenia gravis, 1119
PETIT MAL: See Epilepsy
PETROLATUM
  . liquid, in peritoneal cavity, 1325
  liquid, lipid pneumonia caused by mineral oil laxative, [Baron] 1309—ab
PEYER'S patches in intestinal tuberculosis, X-ray study, Spain, 1499
PHALANGES: See Fingers
PHARMACEUTICALS
  allergy to excipients of, [Randolph] 1027—ab
PHARMACISTS
  disapprove compulsory health plan, 690—E
PHARMACOLOGY: See also Drugs; Pharmaceuticals; Pharmacists
  of organic phosphorus insecticides, [DuBois] *105
PHARMACOPEIA
  U.S.P. Convention honors E. Fullerton Cook, 1386
PHARMACY
  A.M.A. Council on: See American Medical Association
PHARYNX
  bacterial culture, effect of antibiotic aerosols, [Prigal & Molomut] *897
  complications of chloramphenicol therapy, [Williams] 1510—ab
  diverticula (lateral) as a cause of dysphagia, [Buckstein & Reich] *1154
  diverticula, surgical treatment [Koch] 963—ab
  Intra Oral and Pharyngeal Structure and Their Movements, (film review) 1507
PHENINDAMINE
  tartrate, treatment of Parkinson's disease, [Effron & Denker] *7
PHENERGAN
  treatment of paralysis agitans, [Winther] 966—ab

PHENOBARBITAL
  sodium with benzyl alcohol, N.N R (Miller), 385
PHENOLSULFONPHTHALEIN
  sodium test, 1602
PHENURONE
  death after therapy in psychomotor epilepsy, [Levy] 494—ab
PHEOCHROMOCYTOMA, 396—E; [Bartels] 488—ab
  arterenol and epinephrine increased urinary output, [Engel] 1408—ab
  diagnosis by benzodioxane test, [Koffler] 1028—ab
  treatment, successful removal, piperoxan (benocaine) aids in, [Kositchek & Rabwin] *826
PHILIPPINES
  need packages and books, 58
PHLEBITIS: See also Thrombophlebitis
  postoperative recent, anticoagulants for, [Olivier] 964—ab
  postoperative, starting point of, [Ducuing] 276—ab
PHLEBOTHROMBOSIS: See also Thrombosis, venous
  treatment, dicumarol; dosage, 79
PHLEBOTOMY: See Venesection
PHLEGMASIA
  cerulea dolens, [Perlow] *1257
PHONE: See Telephone
PHOSPHATE
  calculi (renal), aluminum gels for, [Shorr & Carter] *1549
  Di-isopropyl Fluoro—: See Di-isopropyl fluorosphate
  Hexaethyl tetra —: See Hexaethyl Tetraphosphate
  in blood: See Blood
  insecticides, toxic action [Abrams] 1028—ab
  nerve gases, medical problems in chemical warfare, [Wood] *606
PHOSPHORUS
  insecticides, danger from chemicals in foods, 849—E
  insecticides (HETP, TEPP and parathion), [Grob] *105
  insecticides pharmacology; toxicology; usefulness, [Rohwer & Haller] *104
  poisoning, effects of swallowing box of matches, 810
  radioactive, a new dimension to biochemical studies, 978—ab
  radioactive, to measure action of lipotropic substances in liver disease, 1566—E
PHOTOGRAPHY: See Moving Pictures
PHRENIC Nerve: See Nerves
PHYSICAL DEFECTS: See also Abnormalities (cross reference); Crippled; Handicapped; Rehabilitation
  corrective exercises for, 79
  state laws on (Bureau report), 863; 865
PHYSICAL EDUCATION: See Athletics; Exercise, therapeutic; Health education
PHYSICAL EXAMINATION: See also Physical Defects; Psysical Fitness
  Medical Examination (film review), 868
  of American Indians, 1012
  of automobile drivers, of children, of food handlers, state laws on (Bureau report), 862
PHYSICAL EXERCISE: See Exercise
PHYSICAL FITNESS: See also Physical Defects
  of reserve officers of U.S. Army, 1187
PHYSICAL MEDICINE: See also Physical Therapy
  American Board of: See American Board
  A M A Council on: See American Medical Association
  Connecticut study, especially of chronically ill, [Covalt] *1249
  in medical education, [Rusk] *730
  International Federation of, organized in London, England, [Krusen] *730
  Living with Limitations (film review), 572
  scope and future, [Krusen] *727
PHYSICAL REHABILITATION: See Rehabilitation
PHYSICAL THERAPY: See also Baths; Diathermy; Cold, therapeutic use; Heat, therapeutic use; Physical Medicine; Radium, Roentgen Therapy; Ultraviolet Rays; under names of specific diseases
  center at Oak Forest Institutions, Illinois, 938
  course (advanced) for physical therapists, N. Y., 402
  licensing physical therapists, state laws on (*Bureau report*), 864
  students to enrol in U. of Pennsylvania in February, 1578
PHYSICALLY HANDICAPPED: See Handicapped
PHYSICIANS: See also Economics, Medical; Medical Jurisprudence; Medical Service; Surgeons
  Alien. See Physicians, foreign
  American, Serving Overseas: See Korean War
  American, visit Great Britain to study National Health Service, 566
  as citizens, and recent elections, 318—E; 1007—E; 1009; 1186; [Henderson] *1269; (absentee ballot for) 1480

PHYSICIANS—Continued
  avocation, New York Physicians Art Club, 1273
  Awards to: See Prizes
  British, clerical work of a doctor's surgery, 1197
  Commissions (Military): See Medical Preparedness
  Consulting: See Consultation
  continuation courses for, *132; 1265—E; *1285
  Courses for: See Education, Medical, graduate
  Deaths: See also list of Deaths at end of letter D
  deaths, cause of in diabetic physicians, [Bradley] *444
  Directory of: See American Medical Directory
  Education of: See Education, Medical
  English: See Physicians, British
  Ethics: See Ethics, Medical
  Fellowships for: See Fellowships
  Fellowships in A M.A.: See American Medical Association
  Foreign: See *also other subheads as* Physicians, British
  foreign graduates, state laws on (Bureau report), 864
  foreign, refugee doctors, 542—ab
  foreign, training, 322
  free choice of, for U. S. employees, A M A resolution on, 1472
  Graduate Work: See Education, Medical
  Greek, *advanced training for,* 472
  Greek, in training in anesthesia, 1489
  Heroic Action. See Korean War Heroes; World War II, Heroes
  Hospital: See Hospitals
  in politics: general assembly, Ind, 1385
  In Service: See Armed Forces; Army, U. S; Korean War; Medical Preparedness; Navy, U. S
  Income Tax: See Tax
  Indian service, promoted: Dr. Edward J. Johnson, 1012
  Industrial: See Industrial Health
  insurance (life) for those returning to service, 1571
  kickbacks from opticians contrary to public policy, 47—E; 652
  Killed in Service: See Korean War, Heroes
  Lectures honoring: See Lectures
  let's keep America healthy: fight against communism, 1094—E
  leukemia in, incidence, 1540—ab
  Licensure of: See Licensure
  Malpractice by: See Malpractice
  Medals for: See Prizes
  medical careers conference, 1193
  Medical Responsibility: See Malpractice; Medical Jurisprudence; Medicolegal Abstracts at end of letter M
  Memorial: See also Fellowships; Lectures, Prizes
  memorial, Dearholt Days program, Wisconsin, 855
  memorial, Henry D. Fry, plaque dedicated, 1013
  memorial, Irvin Abell, Ky., 698
  memorial: John Walker Moore Clinic dedicated, Kentucky, 1272
  memorial, Thurman B. Rice Auditorium, Ind, 190
  memorial, Whipple Auditorium dedicated, New York, 1273
  memorial, William F. Snow, memorial meeting, 699
  Military Service: See Armed Forces; Army, U. S; Korean War; Medical Preparedness
  Mobilization: See Medical Preparedness
  National Bureau of Standards, Dr. Coe made staff physician, 1012
  Negligence of: See Malpractice
  office hours, old and new, for patients, Sweden, 705
  placement service, Council report, 669
  Portraits: See Portraits (cross reference)
  positions open for civilian medical officers in U S. Army, [Stimburis] 860—C
  positions open, U.S. Public Health Service, 1099; 1101
  Practicing: See also Medicine, practice; Physicians, supply
  practicing, A.M A. General Practitioner Award to Dr. Luce, 1378—E; 1469
  practicing, general practitioner and community rehabilitation center, [Jones] *990
  practicing, general practitioner as urologist, [Hess & others] *601
  practicing, general practitioner, fertile fields for [Casebolt] *599
  practicing, general practitioners, B M.A. discusses, 62; 1279
  practicing, general practitioner in the hospital, 766—E
  practicing, under Health Insurance Plan of Greater New York, [Shapiro] 412—C; [Baehr] 485—C
  precedence when several physicians are summoned, 927—ab
  Prescriptions: See Prescriptions
  Privileged Communications: See Privileged Communications

PHYSICIANS—Continued
  Prizes for: See Prizes
  Public Relations: See Public Relations
  radio "Dr. Christian" receives award, District of Columbia, 537
  receiving J.A M A., percentage of, 634
  Refugee: See Physicians, foreign
  register for voting! 318—E
  Registration: See Licensure; Medical Preparedness
  Registration for Military Service: See Medical Preparedness
  Resident: See Residents and Residencies
  Royal College of, Library dates from 16th century, 1497
  Service by: See Medical Service; Medical Service Plans
  Spanish speaking, first international congress, New York, 1015
  Specialization by: See Specialties
  supply, A M A. resolution on inspecting government agencies use of medical personnel, 1482
  supply, Council report, 669
  supply, Dr Meiling warned against building up too high ratio of to troop strength, 1010
  supply, false reporting of shortages, 848—E
  supply, how to obtain a more equitable distribution, 669
  supply, Korean war and doctor shortage, 930—E
  supply, pathologists needed, 690—E
  supply, prewar and postwar distribution; population ratios, 214—E
  supply, shortage and training of psychiatrists, Sweden, 332
  supply, shortage in Sweden, 1021
  supply, urgently needed by VA, 473
  Team of: See Medical Mission
  Training: See Education, Medical
  veteran, 41 achieve emeritus standing, Calif, 1190
  veteran, practitioners in their nineties, 691—E
  War Service: See Korean War
  what community expects of the doctor, [Seltzer] *1573
  wills for, [Waugh] 842
  Women: See also Students, Medical, women
  women, appointment as U.S. Army reserve officers, 471
  women, commission medical professional women, 321
  women, in the U S. Navy, [Swanson], 65—C
  women, involuntary recall of women specialists by U.S. Army, 471
PHYSIOLOGY
  lectures on, Argentina, 63
PHYSIOTHERAPY: See Physical Therapy
PHYSIQUE: See Constitution
PICTURES: See Moving Pictures; Portraits (cross reference)
PIGMENTATION: See Skin
PIGS: See Hogs
PILOTS: See Aviation
PIMPLES: See Acne
PINWORM, Infection with: See Oxyuriasis
PIPEROCAINE hydrochloride, N N R. (Lilly); 928
PIPEROXAN (BENODAINE)
  pheochromocytoma successfully removed with aid of, [Kositchek & Rabwin] *826
PITTSBURGH Award: See Prizes
  University of: See University
PITUITARY
  Adrenocorticotropic Hormone: See ACTH
  anterior and adrenocorticotropic personality classification, 1536
  exophthalmos from thiouracil, [Maranon] 1594—ab
  hyperglycemia, [Wilder] *1236
  tumors, adenoma, degenerative changes in, [Brougham] 1306—ab
  tumors, adenoma, radiotherapy, [Buschke] 497—ab
  tumors, electrocoagulation of, [Bauer] 961—ab
PLACEBO
  effect on cardiac pain; "daily report card" method, [Cattell] *891
  treatment of obesity, [Edwards] 1593—ab
PLACEMENT: See Physicians
PLACENTA: See also Fetus
  barrier in carbon monoxide, barbiturate and radium poisoning, [Martland] 1203—ab
  metastases in malignant disease, [Bender] 71—ab
  permeability to penicillin, [Grasset] 1315—ab
  permeability to Schizotrypanum cruzi disproved, 1281
  tumors, hydatidiform mole and choriocarcinoma, [Novak] 416—ab
PLAGUE
  especially in New Mexico; penicillin treatment ineffective, [Link] *375
  in cottontail rabbits in New Mexico, [Link] 345—ab
  in fleas, 1386
  outbreak in Bolivia, 258
  treatment, aureomycin and chloramphenicol, [Meyer] *984; [Sokhey] 1214—ab
  treatment, sulfonamides, antiserum, antibiotics in pneumonic, septicemic and bubonic plague, [Meyer] *982

PLANES: See Aviation
PLANNED Parenthood: See Contraception
PLANTS: See Grass; Pollens, Ragweed
PLASMA: See subheads under Blood; Blood Transfusion; Serum
PLASMACYTOMA
  of lymph node, [Simon] 1211—ab
PLASMACYTOSIS: See Blood dyscrasia
PLASTIC Surgery: See Surgery
  tubing used in surgical treatment of ascites, [Parker & Breckler] *1091
PLATELETS: See Purpura, thrombopenic
PLATINUM
  dermatitis from jewelry, 725
PLAY: See Recreation
PLEURA
  protection by streptomycin, [Mattei] 276—ab
PLEURISY
  Purulent: See Empyema
  recurring attacks (reply), [Small] 360
PLEURODYNIA, EPIDEMIC
  Bornholm disease and Coxsackie viruses, [Findlay] 316—ab; [Rasmussen] 719—ab
PNEUMOCONIOSIS: See Pneumonoconiosis
PNEUMONIA: See also Bronchopneumonia
  atypical influenzal, [Marie] 965—ab
  atypical primary, [Cateigne] 502—ab
  atypical primary, aureomycin for, 1583
  atypical primary, cold agglutinins in, [Eyquem] 965—ab
  atypical primary, severe, sporadic virus; diagnosis; treatment, [Reimann] *81
  Klebsiella, acute primary, streptomycin and aureomycin for; penicillin and sulfadiazine ineffective, [Nataro & others] *12
  lipid caused by mineral oil laxative, [Baron] 1309—ab
  lipid, diagnosis from sputum, [Losner] 336—ab
  lipid, pulmonary paraffinoma [Berg] 1511—ab
  prognosis in childhood, [Holzel] 1592—ab
  treatment, aureomycin, chloramphenicol or terramycin, [Kirby] *235
  treatment terramycin, [Simon] 1210—ab
  Virus: See Pneumonia, atypical primary
PNEUMONOCONIOSIS
  silicosis due to magnesium silicate, 510
  stannic oxide, [Dundon] 416—ab
PNEUMOPERITONEUM
  therapeutic, acute appendicitis during, [Knoepp] 69—ab
PNEUMOTACHOGRAMS
  electrophrenic respiration in acute bulbar poliomyelitis, [Sarnoff & others] (corrections), 252
PNEUMOTHORAX
  spontaneous benign, [Melrose] 1310—ab
PNEUMOTHORAX, ARTIFICIAL: See also Tuberculosis of Lung
  physiologic and anatomic effect of, 212
  protect pleura by streptomycin, [Mattei] 276—ab
POETRY: See also Book Notices at end of letter B
  Lament of a Laboratory Librarian, 467—E
POISONING: See under names of specific substances as Carbon Monoxide; Phosphorus
  effect of swallowing box of matches, 810
  Food: See Botulism
  Industrial: See Industrial Dermatoses; Industrial Diseases
POLIOMYELITIS
  bulbar (acute), electrophrenic respiration in, [Sarnoff & others] (correction) 252
  bulbar, does ingestion of milk increase secretion of respiratory mucous membrane, 1018
  bulbar, respiratory paralysis in, [Bolt] 501—ab; [Bourdillon] 1128—ab
  bulbar, respiratory studies, England, 777
  bulbar, suffocation in, mechanism, [Sjoberg] 1205—ab
  bulbar, tracheotomy in, [Strobel] 1205—ab
  center, 10th year, Ala., 1381
  courses (short) Calif., 1384
  Coxsackie viruses associated with, [Huebner & others] *609; 1265—E; [Melnick] 1307—ab
  diagnosis, differential, [Woodcock] 1208—ab
  epidemic in Iceland simulating, [Sigurdsson] 1508—ab
  epidemiologic aspects, [Thompson] 960—ab
  etiology, hypothesis, [Cumming] 1210—ab
  immunity, (milk-borne) 1379—E
  immunization against pertussis and diphtheria preceding, 240—E; [Leake] 259—C; [Hill; MacCallum] 585—ab
  immunization against whooping cough and, [Banks] 959—ab
  in newborn, [Baskin] 575—ab
  in Paulding County Ohio, 698
  incidence, U. S, 57; 193; 252; 326; 405; 476; 560; 700; 773; 855; 941; 1015
  mortality rate for first 8 months of 1950, U. S. 1488
  muscles and nerves in, [Denst] 1302—ab
  myocarditis in, [Spain] 1402—ab
  pain and contracture in, [Guyton] 339—ab
  subacute anterior, paralytic-atrophic form, [Sarteschi] 430—ab
  swimming hole and, 1224
  tonsillectomy survey, [Cumming] 791—ab; [Dunn] 1520—ab
POLIOMYELITIS—Continued
  treatment, aureomycin, in acute anterior, [Weis] 579—ab
  treatment, care of children convalescing from; several controversial points, [Bennett] *377
  treatment, clinical management of; use of priscoline, [Smith & others] *213
  treatment, course in care of patients, Los Angeles, 54
  treatment, hip deformity and erector spinae transplant, [Barr] *813
  treatment, intermittent, with progressive resistance exercise; DeLorme table, [Mead] *158
  treatment, McKesson Respiraid Rocking Bed, 1181
  treatment, reeducation of patient, [Leroy] 800—ab
  virus and Coxsackie virus in paralytic, [Melnick] 1307—ab
  virus in muscle, 716—ab
POLITICS: See also Election; Democratic Party
  health and, 930—E
  Physicians in: See Physicians
POLLENS
  allergy to, 597
  ragweed pollinosis, [Barnes] 712—ab
POLLINOSIS: See Hay Fever
POLLITZER Lecture: See Lectures
POLYARTERITIS: See Periarteritis
POLYARTHRITIS: See Arthritis
POLYCYTHEMIA
  vera, [Videback] 719—ab
POLYMYXIN
  treatment of plague, [Meyer] *981
POLYNEURITIS: See Neuritis
POLYPS
  familial polyposis of colon, [Clark] 1127—ab
  multiple polyposis of colon, [Bartlett] 270—ab
  of colon, [Acuff] 493—ab
  of rectum and sigmoid in relation to carcinoma, [Ortmayer] 311—ab
POLYSACCHARIDES
  anticancer, 932—E
POOR: See Medically Indigent
POPULATION: See also Citizens; Manpower; Vital Statistics
  ratios, prewar and postwar distribution of physicians according to, 211—E
PORADENITIS: See Lymphogranuloma, venereal
PORK: See Trichinosis
PORPHYRIA
  surgical diagnosis, [Calvy] 497—ab
PORTAL VEIN
  surgical treatment of in hypertension, [Longmire] 1207—ab
PORTRAITS: See under name of individuals as Luce
POSITION in Space: See Posture
POSITIONS Open: See Physicians, positions open
POSITIVE Pressure: See Pressure
POSTCARD with detachable label, requests for reprints, [Keitel] 1110—C
POSTGRADUATE: See Education, Medical
POSTMORTEM: See Autopsies
POSTNATAL: See Infants, Newborn
POSTOPERATIVE: See Surgery
POSTPARTUM: See Puerperium
POSTURE: See also Convalescence; Seats
  energy expended by patients on bedpan and commode, [Benton & others] *1413
  hypotension, 1226
POSTWAR: See World War II
POTASSIUM
  clinical physiology, [Hoffman] *1157
  deficiency in gastrointestinal disease, [Smith] 1591—ab
  deficiency in surgical patients, [Marks] 953—ab
  electrolytes and proteins in gastric juice in relation to, [Martin] 872—ab
  excretion after partial gastrectomy, [Wilkinson] 877—ab
  in Blood: See Blood
  metabolism, adrenal cortex response to stress with respect to, [Hoagland] 495—ab
  Penicillin: See Penicillin G
  poisoning, danger in home cold permanent waving kits, 397—E
  significance in medicine and surgery, London, 944
  treatment of diabetic coma, [Story & Root] *86
  treatment of prolonged vomiting and diabetic acidosis, [Nadler] 419—ab
  treatment (parenteral) to prevent sodium and chloride losses in surgical patient, [Randall] 1308—ab; [Lowe] 1406—ab
  water and electrolyte losses in infantile diarrhea, [Hoffman] *1160
POTATOES
  Clapp's Strained Sweet Potatoes, 1374
  Gerber's Junior Sweet Potatoes, 763
POTT'S Disease: See Spine tuberculosis
POVERTY: See Medically Indigent
POWDER: See Dusting Powder
POWER, Atomic: See Atomic Energy
POX: See Chickenpox; Rickettsialpox; Smallpox
PRACTITIONER: See Physicians
  Drugless: See Cults (cross reference)
  Illegal: See Quacks
PRAYER and juvenile delinquency, [Nicholson] *1530
PRECEPTORSHIP: See also Interns and Internships
  schools which have established, *126
  students to work with preceptors, Texas, 854
PRECONCEPTION clinic, New York, 1273
PREECLAMPSIA: See Eclampsia
PREFRONTAL Leukotomy: See Brain surgery
PREGNANCY: See also Fetus; Impregnation; Labor; Maternity; Obstetrics; Placenta; Puerperium; Reproduction
  blood in, amino acid pattern in fetal and maternal plasma, [Crumpler] 1035—ab
  cesarean section, Norway, 257
  complications: appendicitis [van Assen] 1313—ab
  complications: coarctation of aorta, 974
  complications: diabetes, [Pahlsson] 429—ab; [Zilliacus] 1521—ab
  complications, diethylstilbestrol in, safe dosage, 1418
  complications: Hodgkin's disease, [Bichel] 1215—ab
  complications, mastectomy, 286
  complications, measles (morbilli), effect on unborn child, [Packer] 796—ab
  complications: patent ductus arteriosus, 286
  complications: placental metastases in malignant disease, [Bender] 71—ab
  complications: rubella; congenital inner ear deafness, [Hiller] 1128—ab; [Gerrard] 1310—ab
  complications: strangulated diaphragmatic hernia, [Pearson & others] *22
  complications: syphilis, [Macfarlane] 499—ab
  complications: thrombophlebitis and labor, 359
  Conference on Pregnancy Wastage, 1579
  diagnosis, male toad, [Johnson] 265—ab; 330
  diagnosis, skin test, present status, 1418
  diet in, and preeclampsia, [Penning] 341—ab
  hormones treatment in rheumatic fever and rheumatic carditis, [Brewer] 340—ab
  Interruption of: See Abortion
  Multiple: See Twins
  penicillin used in; transplacental passage, [Grasset] 1315—ab
  preconception clinic established New York, 1273
  premature rupture of membranes, 811
  prenatal clinic for medically indigent, Michigan, 1192
  prenatal examinations, state laws on, 655
  primipara immunized by previous intramuscular injection of Rh (D) blood, [Sharnoff & Jasper] *845
  Protection From: See Contraception
  refraction during, 1140
  Rh isosensitization by, 1417
  Syphilis in: See Pregnancy, complications
  Toxemia of: See also Eclampsia; Pregnancy, vomiting in
  toxemia of, and renal hemadynamics, [Turner] 869—ab
  undernutrition of mother and size of baby at birth, [Dean] 272—ab
  Urine, Hormone Excreted in: See Gonadotropins, chorionic
  vitamin D, optimum dose in, Paris, 1019
  vomiting in, and nocturnal cramps, 1226
  vomiting in, etiology and therapy of; use of antihistamines, [Wagner] 719—ab
  vomiting in; infiltrate cervical sympathetic with procaine for, [Paschen] 719—ab
  vomiting in, psychological approach, [Smith] 490—ab
PREMATURE Infants: See Infants, premature
PREMEDICAL Work: See Education, Medical
PRENATAL: See Fetus; Pregnancy
PRENTISS Award: See Prizes
PREOPERATIVE: See Surgery
PREPAREDNESS, Medical: See Medical Preparedness
PREPAYMENT Plans: See Hospitals, expense insurance; Medical Service Plans
PRESBYACUSIA
  sex hormones, effect on, [Kroath] 588—ab
PRESCRIPTIONS
  Argentine physicians to be prosecuted if prescribed products not on market, 946
  refilling of, proposed change in federal regulations, 1381
PRESENTATION: See Labor presentation
PRESIDENT'S
  Conference on Industrial Safety, principles accepted, 1008—E
  Reorganization Plan 27: See U. S. Department of Health Education and Security
PRESS: See Newspapers
PRESSURE
  breathing apparatus in inhalational therapy, *28
  oil forced into finger, 1224
  Respiraid Positive Pressure Mask, Model 350, 928

PREVENTIVE MEDICINE See also Immunization, Vaccination
  American Board of See American Board
  basic principles for a public health program in Colombia, 1199
  U. S Army, organizing units for duty in Far East, 1010, 1101
PRICE, DAVID E, appointed assistant Surgeon General, 1489
PRISCOLINE. See Benzazoline
PRIVILEGED COMMUNICATIONS
  state laws on (Bureau report), 865
PRIZES See also Fellowships, Lectures; Scholarships
  American College of Chest Physicians, 57
  American Dermatological Association, 940
  American Hospital Association Award of Merit, 251
  A M A General Practitioner's Award to Dean Sherwood Luce, 1378—E, 1469
  American Public Relations Association Award, 1194
  Awards for Distinguished War Service See Korean War II Heroes, World War II, Heroes
  Barfred-Pedersen, 779
  Borden Award, 1274
  Carty Medal, 559
  Chicago Ophthalmological Society, 1102
  Chicago Surgical Society, 853
  Ciba Award, 559
  Commercial Solvents Corporation and Society of American Bacteriologists Award, 476
  Dana Medal, 1578
  Dearholt Medal, 1386
  District of Columbia Medical Society awards "Doctor' Paul Christian certificate, 557
  Gorgas Medal, 1383
  Kimble Glass Methodology Research Award, 1274
  Lasker Foundation Awards, 773, 940
  Lugaro, Italy, 859
  Mead Johnson & Co B complex Award, 940
  Medical Society of State of Pennsylvania, 699
  Nobel, 849—E
  Pittsburgh Award, 1193
  Prentiss Award, 1103
  Rush, 1104
  Sorbonne Medal, 568
  Southwest Award 1492
  Squibb Award, 559
  Van Meter Award, 476
  Victory Medal for diabetic patients, London, 1280
  Walton (Izaak) Award, 1013
  Wellcome Medal and Awards, 471
PROCAINE AMIDE HYDROCHLORIDE
  N N R (description) 1465; (Squibb) 1465
PROCAINE HYDROCHLORIDE
  blockage of cervical sympathetic for cerebral thrombosis, 1533
  blockage of sympathetic, complications, [Bourner] 799—ab
  cardiac drug, [Oury] 350—ab
  infiltration of cervical sympathetic in vomiting of pregnancy, [Paschen] 719—ab
  injection, cardiac arrest relieved by, [Roualle] 1519—ab
  injection into sympathetic ganglions for heart disorders, [Braeucker] 799—ab
  intravenously, in acute glomerulonephritis, [Goluboff] 961—ab
  Penicillin See Penicillin G; Penicillin treatment
  toxicity fatal reactions after intravenous use, 812
  treatment of hypertension with, in honey, [Beckmann] 428—ab
  treatment of scleroderma, [Turner & Schmidt] *1560
PROCTOLOGY
  American Board of See American Board
PROFESSIONAL Secrecy. See Privileged Communications
PROGESTERONE
  treatment of rheumatic carditis, [Brewer] 340—ab
PROLAPSE See Spine, intervertebral disk; Stomach, Uterus; Vagina
PROMACETIN
  treatment of leprosy, [Johansen & Erickson] *988
PROMIN
  treatment of leprosy, [Sloan] 341—ab
PROMIZOLE
  treatment of leprosy, [Sloan] 341—ab
PRONESTYL hydrochloride, N N R., (description) 1465, (Squibb) 1465
PROPHENPYRIDAMINE maleate, N N R. (description), 624, (Schering), 624
PROPYLTHIOURACIL
  treatment plus methyl thiouracil in thyrotoxicosis, [Poate] 716—ab
  treatment, periarteritis during, [McCormick] *1453
PROSTATE
  cancer, 724
  cancer and estrogen therapy, [Miller] 1034—ab
  cancer, androgens and estrogens relation to, [Brendler] 1207—ab
  cancer cells in secretion, [Jonsson] 1311—ab
PROSTATE—Continued
  cancer, conservative operation, 109 cases, [Hand] 956—ab
  cancer, cytologic detection, [Hock] 421—ab
  cancer, diagnosis by family physician, [Hess & others] *604
  cancer, results of conservative management, [Reynolds] 1207—ab
  fungous infection, 80
  Inflammation. See Prostatitis
  smears stain for, 1325
  trichomonads in urine, 976
PROSTATITIS
  chronic, 79
PROSTHESIS
  acrylic, 197
  Institute, Calif, 1272
PROSTIGMINE See Neostigmine
PROTAMINE Insulin See Insulin
PROTEIN See also Amino Acids
  Annual Protein Conference, (7th) 1577
  electrophoresis and cromatography in study of, Italy, 1107
  in Blood See Blood
  in diet in jaundice, [Steigmann] *1077
  in gastric juice relation to potassium, [Martin] 872—ab
  lectures on, Rome, Italy, 1020
  metabolism, ACTH and cortisone effect on, [Sprague & others] *1342
  metabolism in surgical patients, [Radvin & Gimbel] *979
  natural and artificial iodoproteins, 1393
  Sensitivity. See Allergy
  synthesis, Italy, 1198
PROTHROMBIN See Blood prothrombin
PRUNES
  juice as cathartic, 1420
  Libby's Junior Foods, 763
PRURITUS
  vulvae due to aureomycin [Behrman] *995
PSEUDOHERMAPHRODITISM
  general practitioner as urologist, [Hess & others] *601
PSITTACOSIS. See also Ornithosis
  small epidemic of, caused by parakeets, [Schalm] 1038—ab
  treatment, aureomycin, [Green] *237
PSORIASIS
  psoriatic arthritis, cortisone and ACTH for, [Hench & others] *1330
  treatment, undecylenic acid, exfoliative dermatitis after, [Schiff] *620
PSYCHE See also Personality
  blood pressure and, [Palmer] *295
PSYCHIATRY· See also Hospitals, psychiatric; Mental Disorders, Mental Hygiene, Psycho—
  American Board of See American Board
  chief of, V A Regional Office Dr Davidson, 696
  in 1950, [Burlingame] *1365
  International Congress on, Paris, 256
  licensing psychiatrists, state laws on (Bureau report), 864
  program at U of Pittsburgh, 1578
  residencies in, VA, 473
  shortage and training of psychiatrists, Sweden, 332
PSYCHOANALYSIS
  Unconscious Motivation (film review), 335
  unsatisfactory results, [Oberndorf] 1212—ab
PSYCHOLOGISTS
  certification (Bureau report), 651
  examinations for, 556
  licensing state laws on (Bureau report), 864
PSYCHOLOGY. See also Psychologists, Psychosomatic Medicine
  tests in analyses of organic psychoses, [Lunn] 797—ab
PSYCHOPATHIC Hospitals· See Hospitals, psychiatric
PSYCHOSES See also Mental Disorders
  genius and psychosis; article by Russell Brain in *British Medical Journal*, 692—E
  organic, psychologic tests in analyses of, [Lunn] 797—ab
PSYCHOSOMATIC MEDICINE
  aspects of frigidity, [Kroger & Freed] 571—C
  aspects of obstetrics, [Valle] 428—ab
  aspects of peptic ulcer, [Wagner] 799—ab
  division, established at Washington U, St. Louis, 250
  pathology school, Spain, 1499
PSYCHOSURGERY. See Brain surgery
PSYCHOTHERAPY, [Burlingame] *1367
PSYLLIATE, sodium, N N R (description), 760, (Searle) 760
PUBERTY· See Adolescence
PUBLIC HEALTH. See Health, public
  American Board of: See American Board
  Missions. See Medical Missions
PUBLIC RELATIONS
  A M A. Medical Public Relations Conference (3rd) 188, 639, (program) 1189
  American Public Relations Association award to Smith, Kline and French Laboratories, 1194
  thorough study of, by A M A committee authorized by Board, 695, 1473
  What the community expects of the doctor, [Seltzer] *1573
PUBLIC SCHOOLS: See Schools
PUBLICITY
  effect on use of drugs, [Boles] *362
  [illegible] Santa Clara County Society, 243—E
  complications mastitis, etiology, [Muth] 1409—ab
  complications thromboembolism, treatment, [Levy-Solal] 277—ab
PUERTO RICO
  needs for children, 1010
PULMONARY· See Lungs
  Arteries See Arteries, pulmonary
  Embolism See Embolism
  Tuberculosis See Tuberculosis of Lung
PULMONARY VALVE
  stenosis (congenital) with intact ventricular septum, valvulotomy, [Potts & others] *8
  stenosis, surgery for, [Glover & others] *1050
PUNCTURE See also Spinal Puncture, Sternum
  surgical sterilization of lancets, 1226
PUPILS
  dilation of, by general practitioner, use of cocaine hydrochloride, 1536
PURPURA
  Henoch-Schonlein, ACTH for, [Stefanini & others] *1372
  thrombopenia, 887
  thrombopenia (essential), splenectomy in, in children, [Stahlie] 1312—ab
  thrombopenic purpura. Moschcowitz syndrome, [Goldenburg] 1126—ab
PUTNAM Fellowship See Fellowships
PYLORUS
  achalasia, Sao Paulo, Brazil, 779
PYORRHEA
  retinal hemorrhages and, 1224
PYREXIA See Fever
PYRIDOXINE HYDROCHLORIDE
  N N R, (Miller), 519
PYRILAMINE maleate, N N R (Lilly), 928
PYROGENS
  reactions to dextrose, role of allergy to corn, 1379—E
PYROMEN
  fever therapy in asthma, 1419

Q

Q FEVER
  complications, [Moeschlin] 1524—ab
  Coxiella burnetti recovered from dust, [DeLay] 1123—ab
  diagnosis (differential) from virus pneumonia, [Reimann] *81
  epidemic in workshop of Swiss railroads [Brachert] 502—ab
  in a wool and hair processing plant, [Sigel] 263—ab
QUACKS
  exposure by metropolitan newspapers, 764—E
QUARANTINE See Communicable Diseases
QUARTERLY Cumulative Index Medicus See American Medical Association
QUINIDINE
  allergy to, 887
QUININE
  cultivation of· quinquina, [Garate] 334—C
  sulfate and pentaquine phosphate, N N R (description), 761; (Abbott), 761
QUINOLINE See Chloroquine

R

RP 2987 (diparcol) treatment of parkinsonism, 1224
RP 3356 treatment of Parkinsonism, 1224
RABBIT FEVER: See Tularemia
RABBITS
  cottontail, plague in, in New Mexico, [Link] 345—ab
RABIES
  Caribbean rabies conference, Jamaica 559
  control, mass vaccination of dogs on Mexican border, 1195
  in animals, 1216—ab
  outbreak control, [Tierkel] 1589—ab
  vaccine, N N R (Parke, Davis), 385
RACES See also Indians, American, Negroes
  brain weight of white, yellow and Negro races, 811
  classification, use of blood groups in, 765—E
RADIATION See also Infra-Red Rays; Radium, Roentgen Rays Ultraviolet Rays
  excessive, protecting photofluorographic personnel from, [Van Allen] 793—ab
  injury in radiologic work, [Hultberg] 961—ab
  injury, role of spleen in, [Jacobson] 205—ab
  ionizing, and blood-forming tissues, 1182—E
  rays beyond 70 000 feet altitude· heavy nuclei rays, 1424—ab
  treatment of neoplasms of brain, [Peirce] 1517—ab
RADICULITIS See Sciatica
RADIO See also Television
  broadcast programs on democracy in action, 1194
  "Doctor Christian" receives award from medical society, D C, 557
  documentary broadcasting, 467—E
  Frequency Energy Apparatus: See Diathermy
  health series, S Dak, 854

- RADIO—Continued
  - New York Academy FM "For Doctors Only," 558; 1192
  - Program by the A.M.A.: See American Medical Association
  - program on medical history: Dr. J. Marion Sims, 939
  - transcription series by A.M.A. Bureau, 656
- RADIOACTIVE
  - diiodofluorescein to diagnose and localize central nervous system tumors, [Davis & others] *1421
  - Iodine: See Iodine, radioactive
  - Isotopes: See also Atomic Energy
  - Isotopes Center planned, New Jersey, 250
  - isotopes, courses in use of, 1387
  - isotopes, distribution center, N. Y., 1577
  - isotopes of cobalt, 447—ab
  - isotopes technics, 1452—ab
  - isotopes treatment of multiple myeloma, [Lawrence] 787—ab
  - laboratories at Loyola, 474
  - material, coordinate research studies, at U. of Texas, 404
  - Phosphorus: See Phosphorous
  - static eliminators, hazards in, [Silson] 1509—ab
  - synchrotron, new 70 million volt, 1576
- RADIODYE
  - test for locating tumors of nervous system, [Davis & others] *1421
- RADIOEAR Model 62 Starlet Hearing Aid, 929
- RADIOIODINE: See Iodine, radioactive
- RADIOLOGY: See also Radiation
  - American Board of: See Radiology
  - International Congress of (6th), London, 410
  - leukemia in radiologists, [March] 1302—ab
  - services approved by A.M.A. Council and American Board of Radiology, *136; *140
- RADIOTHERAPY
  - of pituitary adenoma, [Buschke] 497—ab
  - rotation, of neoplasms, 197
- RADIUM
  - poisoning, placenta barrier in, [Martland] 1203—ab
  - tumors resulting from Beta rays, [Stillians] *743
- RAGWEED
  - pollinosis, [Barnes] 712—ab
- RAIDS: See Air Raids
- RAILROADS
  - Q fever epidemic in workshop of Swiss railroads, [Bracher] 502—ab
- RAPE
  - sexual aggression after vasectomy, 721
- RAT BITE FEVER
  - complications: subacute bacterial endocarditis; recovery after penicillin, [Petersen & others] *621
- RATS
  - identification of leptospirae in, Brazil, 1281
- RAYS: See Radiation
- REBATES
  - state laws on (Bureau report), 865
- RECKLINGHAUSEN'S Disease: See Osteitis fibrosa
- RECORD Librarians: See Medical Record Librarians
- RECREATION
  - center at Oak Forest institutions, Illinois, 938
- RECRUITS: See Medical Preparedness
- RECTOSIGMOID REGION
  - tuberculosis, streptomycin for, [Martin] 496—ab
- RECTUM: See also Anus
  - iodochlorhydroxyquin (vioform) not irritating if given by, [Lewis & Leake] 949—C
  - polyps, relation to cancer, [Ortmayer] 341—ab
  - temperature by, normal for infants, 1418
  - temperatures by, of adults, (Council report) [Horvath & others] *1562
- RECUMBENCY: See Convalescence
- RECURRENT FEVER: See Relapsing Fever
- RED BUGS: See Trombidiosis
- RED CELLS: See Erythrocytes
- RED CROSS
  - Belgian, in Congo, 1394
- RED CROSS, AMERICAN
  - atomic energy blood separation research, 53
  - blood procurement, A.M.A. Committee on Blood Banks cooperates with, 188; 550—E; (report) 1473; 1474
  - blood procurement from civilians, 550—E; [Ivy] 780—C; (comment by chairman of A.M.A. Committee on Blood Banks), [Larson] 780—C
  - blood program, Dr. Russell L. Haden appointed to, 1016
  - blood program (nationwide), 470
  - blood procurement program up to July 1951, 1571
  - consolidates publications, 476
  - first aid handbook, home nursing courses, etc., 699
  - Harriman to head, 1104
- REFLEX
  - Carotid Sinus: See Carotid Sinus
  - circulation modified by, [Peterson] 1512—ab
  - conditioned, and arterial hypertension, [deCarvalho] 74—ab
- REFLEX—Continued
  - sympathetic, dystrophy of arm (hand-shoulder syndrome), [Bayles & others] *537
  - trigeminal cardiac, in circulatory diseases, [Brauch] 589—ab
- REFRACTION: See Eyes
- REFRIGERATION
  - of plasma and homologous serum jaundice, [Allen & others] *1070
- REFUGEES
  - disordered society of refugee population of 30,000, 1391
  - Physicians: See Physicians, foreign
  - trachoma in campaign against, 1579
- REGENERATION: See Skin
- REGISTER for voting, 318—E
- REHABILITATION
  - American Board of: See American Board
  - A.M.A. Council on Physical Medicine and: See American Medical Association
  - center in St. Louis, 1491
  - community center, and general practitioner, [Jones] *990
  - Connecticut study, especially of chronically ill, [Covalt] *1219
  - Council report, 649
  - in medical education, [Rusk] *730
  - Living with Limitations (film review), 572
  - National Rehabilitation Association conference, 405
  - of the blind, [Irvine] *1423
  - of injured, 200
  - of poliomyelitis patients, [Leroy] 800—ab
  - scope and future, [Krausen] *727
- REICHSTEIN, TADEUS, Nobel Prize to, 849—E
- REITER'S SYNDROME
  - ACTH and cortisone for, [Ogryzlo & Graham] *1239
  - Trichomonas urethritis or, 1533
- RELAPSING FEVER
  - tick-borne, aureomycin for, [Yeo] 717—ab
  - tick-borne, streptomycin for, [Narain] 716—ab
- RELIEF
  - disaster relief, Florida, 853
- RELIGION
  - juvenile delinquency in relation to, [Nicholson] *1539
- REMUNERATION: See Income
- RENAL: See Kidneys
- RENIN
  - place of its formation in kidneys, [Taquini] 1131—ab
- REORGANIZATION PLAN No. 27: See United States Department of Health, Education and Security
- REPORT CARD
  - method to compare effect of visammin and placebo on cardiac pain, [Cattell] *891
- REPRINTS: See Journals
- REPRODUCTION: See also Coitus; Contraception; Fertility; Pregnancy; Sterility
  - drugs effect on, [Tompkins] 261—C
  - hypothyroidism effect on, [Krohn] 1214—ab
  - museum models on, available, Ohio, 1491
- RES Ipsa Loquitur: See also Medicolegal Abstracts at end of Letter M
- RESEARCH: See also Animal Experimentation; Science; under specific heading as Cancer
  - A.M.A. Committee on, 643
  - A.M.A. grants for, list of, 643
  - animals for, shortage, 1193
  - animals for, National Society for Medical Research seeks photos of, 1578
  - Council of Israel, first bulletin, 1281
  - Council of United Cerebral Palsy Associations, Inc., 1015
  - Fellowships: See Fellowships
  - Foundations: See Foundations
  - Medical Research Council: See Medical Research Council
  - Prizes for: See Prizes
  - programs, medical, state laws on (Bureau report), 867
  - USPHS grants for, 1487
  - worker, library services for, London, 1497
- RESIDENTS AND RESIDENCIES: See also Fellowships; Interns and Internships
  - approved by A.M.A., *134; *135
  - deferment, 1099
  - deferment, U. S. Navy general policy, 52
  - in psychiatry and neurology at VA, 473
  - medical education in national emergency, 1095—E; (Joint Committee statement), 1114
  - service in Armed Forces for, 185—E
  - training in obstetrics and gynecology, 772
  - training in surgical specialties, list of hospitals approved for, 1505
  - under Selective Service System, *111
  - U. S. Army, [Nelson] 949—C; (value of postwar training in Korean War) [Duncan] 1501—C
- RESINS
  - toxicity of vinylite, 211
- RESORCINOL
  - tanning of skin, 975
- RESP-AID
  - Oxygen Humidifier, Models 400 and 425, 929
  - Positive Pressure Mask, Model 350, 928
- RESPIRAID, McKesson Respiraid Rocking Bed, 1181
- RESPIRATION: See also Inhalation; Snoring; Vital Capacity
  - ACTH effect on, Italy, 1107
- RESPIRATION—Continued
  - artificial, apparatus, for inhalational therapy, *28
  - artificial, 8 methods compared, [Gordon & others] *1447
  - artificial, Eve's rocking method combined with Silvester's method, [Gnirrep] 799—ab
  - artificial, McKesson Respiraid Rocking Bed, 1181
  - artificial, new method; different methods compared, [Gordon & others] (Council report) *1455
  - artificial, Silvester's method modified, [Loos] 429—ab
  - control by carbon dioxide, 516—ab
  - disorders, electrophrenic respirator in poliomyelitis, [Sarnoff & others] (correction) 252
  - studies in paralytic poliomyelitis, 777; [Bourdillon] 1128—ab
- RESPIRATOR: See also Respiration, artificial
  - electrophrenic, in poliomyelitis, [Sarnoff & others] (correction), 252
- RESPIRATORY SYSTEM: See also Bronchus; Lungs; Pleura; Trachea
  - cancer, 410
  - Disease: See also Pneumonoconiosis
  - disease, failure of antihistamines, [Feller] 268—ab
  - Infection: See Colds; Influenza; Pneumonia; Tuberculosis of Lungs
  - infection, antibiotic aerosols for, [Prigal & Molomut] *897; [Prigal] 1585—C
  - mucosa, ingesting milk increase secretion from, 1048
  - vitamin A deficiency effect on, [Youmans] *35
- RESPONSIBILITY: See Malpractice
- REST: See Sleep
  - Bed: See Convalescence
- RESTAURANTS
  - Behind the Menu (film review) 1284
- RESTRAINT of Trade: See Sherman Anti-Trust Act
- RESUSCITATION: See also Respiration, artificial; Respirators
  - Beck's course on, Ohio, 1014
  - cardiac, [Wolff] *738
  - of newborn, 360
- RESUSCITATOR
  - Stephenson Minuteman, 762
- RETICULOSARCOMA
  - treatment, nitrogen mustard, [Abu-Jamra] 1010—ab
- RETICULOSIS
  - lipomelanic, [Kirsch; Siegel] 65—C
- RETINA
  - changes in hypertension, [Bechgaard] 877—ab
  - complications of diabetes mellitus, [Knauer] 1122—ab
  - detachment, seasonal etiology, Belgium, 1108
  - glioma, in father and child, [Laval] 711—ab
  - hemorrhage and pyorrhea, 1224
  - massive separation in full term infants and juveniles, [Heath] *1148
- RETIREMENT
  - of business executive at 65, [Unger] 1502—C
- RETROBULBAR Neuritis: See Nerves, optic
- RETROLENTAL Fibroplasia: See Lens, Crystalline
- REVISTA: See Journals
- REVLON, cosmetic preparations accepted by A.M.A. Committee, 1004
- RH FACTOR: See also Erythroblastosis, Fetal
  - fear among obstetric patients, [Bloss] *1360
  - injection of whole blood into infants, 437
  - late sequelae of transfusions and subcutaneous hemotherapy, [Lacomme] 588—ab
  - negative wife, positive husband, 1534
  - Rh (D) blood intramuscularly, fetal hydrops primipara immunized by, [Sharnoff & Jasper] *845
  - Rh hapten (Carter extract) to prevent erythroblastosis, [Wolf & others] *88
  - sensitization, isosensitization by pregnancy, 1417; (reply) [Troy] 1602
  - sensitization, neurologic sequels, [Evans] 272—ab
  - sensitization, treatment with Rh hapten, [Schmigelsky] 341—ab
  - tests for, 286
  - typing, use albumin-active antiserums in, [Stirk] 207—ab
- RHEUMATIC FEVER
  - basketball, permissible after? 1323
  - Cardiac Complications: See Endocarditis; Heart disease (rheumatic); Heart inflammation
  - complicating scarlet fever, [Weinstein] 714—ab
  - reactivation by smallpox vaccination, [Freud] 266—ab
  - seminars on, New York, 250
  - state laws on (Bureau report), 862
  - study, New York, 771
  - subcutaneous nodules induced in, [Massell] 422—ab; [Schwarz] 574—ab
  - treatment, [Pasqualini] 429—ab
  - treatment, ACTH, [Massell] 205—ab; [Massell & Warren] *1335
  - treatment; ACTH and cortisone, [Videbaek] 1133—ab, [Hench & others] *1327; *1330; *1332

RHEUMATIC FEVER—Continued
  treatment, cortisone, grants for research by Westchester Heart Ass'n, New York, 56
  treatment, pregnancy hormones, [Brewer] 340—ab
  treatment, sodium gentisate in acute type, [Camelin] 1039—ab
RHEUMATISM. See also Arthritis
  Acute Articular See Rheumatic Fever
  Arthritis and Rheumatism Foundation, campaign for funds, 855, 1576
  conference on rheumatology, Italy, 256
  Desert See Coccidioidomycosis
  institute on, 248
  treatment, solusal (ethanolamine salt of salicylic acid), [Blumencron] 1216—ab
RHEUMATOID ARTHRITIS· See Arthritis, Rheumatoid
RHINITIS
  allergic, role of foods in, skin testing and intentional feeding, [Leibowitz & others] *990
  treatment, estrogens, [Hildernisse] 717—ab
  Vasomotor· See Hay Fever
RIB See Ribs
RIBOFLAVIN
  deficiencies, [Youmans] *311
  methylol, N N R (description), 624; [Endo] 624
RIBS See also Sternum
  cervical rib syndrome, [Wertheimer] 798—ab
RICE
  cereal, Gerber's, 1374
  Diet See Blood Pressure, High, treatment
RICKETS
  diagnosis, [Youmans] *41
  *incidence, [Youmans] *42*
  result of deficiency of vitamin D, [Youmans] *39
  treatment, vitamin D, [Youmans] *43
RICKETTSIA See also Q Fever; Rocky Mountain Spotted Fever; Typhus
  diseases, treatment, sodium paraaminobenzoate omitted from N.N R, 927
RICKETTSIALPOX
  treatment, aureomycin, [Rose] 1509—ab
RIGIDYL
  treatment of parkinsonism, [Fog] 966—ab
RIGLER Lecture See Lectures
RISING, Early Rising after Operation, etc : See Convalescence
ROACHES See Cockroaches
ROAD Accidents. See Automobile accidents
ROBINS, R. B · Why Medical Economics? 1263—E
ROCHE, JEAN natural and artificial iodoproteins, 1393
ROCKEFELLER INSTITUTE, Mr Rockefeller resigns as head, 1104
ROCKER spine and pain in neck, 598
ROCKING Method of Respiration. See Respiration, artificial
ROCKY MOUNTAIN SPOTTED FEVER
  vaccine, N N R, (Squibb) 928
ROENTGEN RAYS
  American Roentgen Ray Society exhibit wins award, 1102
  burn (severe) during nailing of fracture, [Kuntscher] 274—ab
  chemicals to protect organism against, [Forssberg] 961—ab
  diagnosis of interatrial septal defect, [Healey] 68—ab
  Examination: *See also under specific organs* as Heart, roentgen study
  examination, accidentally detected intrathoracic diseases, [Stensrud] 275—ab
  examination, miniature radiography in detecting of heart disease, [Mathisen] 262—ab
  examinations of inductees, 245
  facsimile services for rural hospitals, [Cohen] 948—C
  facsimiles of veterans x-ray films, 1575
  Irradiation: See Roentgen Therapy
  Obstetric Roentgenography (film review), 1115
  photofluorographic personnel, protecting from excessive radiation, [Van Allen] 793—ab
  tomography; present developement; work of Prof Vallebona, 1582
ROENTGEN THERAPY
  by-effects of irradiation on skin; tumors resulting, [Stillians] *743
  colchicine and, in leukemia, [Keibl] 276—ab
  intestinal lesions from, [Ceelen] 880—ab
  postoperative, in breast cancer, [Portmann] *513
  of scarlet fever otitis, comparative value, [Bydal] 800—ab
  steroid hormone and, in mammary cancer metastatic to bone, [Garland & others] (Council report) *997
ROENTGENOGRAPHY: See Roentgen Rays diagnosis; Roentgen Rays, examination
ROMAN Surgical Society, 481
ROTATION
  sudden sensation of rotation of objects, 1326
ROYAL COLLEGE
  of Physicians, Library of, dates from 16th century, 1497
  of Surgeons, trend in modern surgery, 1391
RUBBER
  manufacturing and cancer, 597
  toxicity to latex, 809
RUBELLA
  congenital inner ear deafness, [Hiller] 1128—ab, [Gerrard] 1310—ab
  therapeutic abortion in Sao Paulo, Brazil, 779
RUBEOLA See Measles
RUDICK-Waugh Test· See Heparin tolerance
RUNYON (Damon) Fellowships· See Fellowships
  Memorial Fund See Foundations
RUPTURE· See Hernia, under names of specific organs as Heart, Spleen
RURAL COMMUNITIES
  County Health Department: See Health
  health, A M A Committee on, report, 11 point program, 661, 1471
  health conference (Indiana), 249; (Wisconsin), 250
  health, National Conference on, 1950, 662
  healthmobiles for, Ky, 1577
  Kentucky Medical Scholarship Fund, 1272
  medical and surgical programs, California, 770
  medical student in Mississippi, [Voskamp] 486—C
  water supply, tularemia from, [Jellison] 1517—ab
RUSH Prize See Prizes
RUSK HOWARD A, granted leave of absence by A M A Council, 694
RUTIN
  effect on blood coagulation, [Matis] 1314—ab

S

S C A P See Supreme Command of Allied Powers
SN 7618 See Chloroquine
SACCHARATED Iron Oxide· See Iron Oxide
SACKS-Libman Disease See Endocarditis, verrucous
SACRAL CANAL, Anesthetic Injected into See Anesthesia, spinal
SACRAMENTO
  Brand Dietetic Foods, 549
"SAD Case of Waiting-Room Willie," comics in fight against State medicine, 46—E
SADUSK, JOSEPH F., JR, consultant to Committee on Medical Sciences, 173
SAFETY
  in industry, 1008—E
SAILORS See Navy, United States
SALARIES· See Income
SALICYLATES. See Acid acetylsalicylic; Acid, *p*-aminosalicylic, Bismuth subsalicylates, Sodium salicylate
SALMON Lectures. See Lectures
SALMONELLOSIS
  epidemics, clinical polymorphism in, 1582
SALT: See also Sodium chloride
  depletion and mercury poisoning, danger in treating failing heart, [Sanderson] 586—ab
  diet (free), Cellu Brand White Wheat Bread, 763
  diet (free) for hypertension, [Allen] 64—C; [Kraus] 1586—C
  diet (low), 1225
  diet (low), in cardiac insufficiency, [Nielsen] 74—ab
  free bakery goods, Neuman's, 763
  retention (postoperative) and adrenal cortical function, [Hardy] 1403—ab; [Johnson] 1511—ab
  retention in liver cirrhosis, [Goodyear] 1123—ab
SAN JOAQUIN Valley Fever: See Coccidioidomycosis
SANATORIUM. See also Tuberculosis
  Clifton Springs, centennial, New York, 1014
SANIPRACTIC See Medicolegal Abstracts at end of letter M
SANITATION. See also Health
  Behind the Menu (film review), 1284
  sanitary workers strike, Chile, 63
SANTA CLARA County Medical Society, value of advertising, 243—E
SARAKA, use in tuberculosis, 888
SARCOIDOSIS
  clinical study, [Riley] 1204—ab
  tuberculin sensitivity in, [Bjørnstad] 1130—ab
  tuberculosis and, [Kalkoff] 966—ab
SARCOMA: See also Fibrosarcoma; Lymphosarcoma; Reticulosarcoma
  diagnosis by sternal puncture, [Brüggemann] 587—ab
SCALDS: See Burns
SCALENUS Anticus Syndrome: *See Muscles*
SCALP
  massage, partial alopecia from, [Bowers] 498—ab
SCARLET FEVER
  complications: gangrene, [Bethe] 1312—ab
  complications. rheumatic fever and glomerulonephritis in, [Weinstein] 714—ab
  otitis, X-ray compared with other treatment, [Bydal] 800—ab
  treatment, penicillin, [Bazán] 878—ab; [Jebens] 1316—ab; [Lasch] 1522—ab
  treatment, penicillin sodium and procaine penicillin, [Jersild] 351—ab
  treatment, symptomatic, gamma globulin and *penicillin compared, [Weinstein] 1405—ab*
SCHAFER-EMERSON-IVY METHOD [Gordon & others] *1447, (Council report) *1455
SCHAFER METHOD, [Gordon & others] *1447, (council report) *1455
SCHAFER - NIELSEN - DRINKER METHOD, [Gordon & others] *1447, (Council report) *1455
SCHAUMANN - Besnier - Boeck Disease See Sarcoidosis
SCHICK Test See Diphtheria
SCHISTOSOMIASIS
  intestinal, Brazil, 1500
  liver cirrhosis in, 185—E
  Schistosoma mansoni, two new vectors snails, 1584
  Thorn test in patients with eosinophilia [Hernandez Morales & others] *379
  treatment trivalent sodium antimony gluconate [Erfan] 877—ab
SCHIZOPHRENIA See Dementia Precox
SCHIZOTRYPANUM Cruzi See Trypanosoma
SCHONLEIN-Henoch Purpura See Purpura
SCHOLARSHIPS See also Fellowships
  American Cancer Society to train scholars *for research in 1951, 560*
  for dependents British Medical Association, War Memorial, 62
  Markle Foundation to continue grants, 251
  medical student in Mississippi, [Voskamp] 486—C
  Rural Kentucky Medical Fund 1272
  state laws on (Bureau report), 867
SCHOOLS See also Education, Students, University
  employees, examination, state laws on (Bureau report), 862
  for Technologists See Technologists
  health, fitness division, A M A program 656
  health programs, state laws on (Bureau report), 862
  health service expand, New York, 1103
  health services, federal aid to, report of A M A Washington Office, 638
  of Basic Medical Science See Basic Science
  of Public Health· See Health, public
  Premedical Work See Education, Medical, premedical
SCHOOLS, MEDICAL. See also Education, Medical, Graduates, Students, Medical, University, under names of specific schools
  applicants, standards for accepting, ratio of to number accepted, *125, 183—E
  approved, in Canada, *112, *114, (list of), *147
  approved, in U. S, 1910-1950, *115
  approved, list of, *141
  approved· U of Washington, also U. of South Dakota, 665
  Association of American Medical Colleges (joint survey of medical education) *111; (Joint Committee on Medical Education in Time of National Emergency) *1095—E*, 1111
  calendars, *115
  classified by ownership, 1949-1950, *130
  cost of attending, *129
  Curriculum. See Education, Medical, *curriculum*
  developments in, *127
  enrolments, 1949-1950, *116; *117
  faculty members and Selective Service System, *111
  faculty members, limited private practice for, Colorado, 1272
  faculty requirements, 1095—E; (Joint Committee statement), 1113
  faculty vacancies, *126
  financial support, *128; 663; [Henderson] *1268
  financial support by A M A, 1378—E; 1476, 1483; 1486; [Henderson] *1570
  financial support, federal aid to, 49, 186, 638
  foreign, *130, *131, 663, 1476, 1482
  graduates with baccalaureate degrees in, *116
  Indiana State Medical Association asks enlargement of, 697
  internship required by, *122
  medical moving pictures used at, Gothenburg Sweden, 1021
  Naval, library renamed Edward Rhodes Stitt Library, 1190
  new, at U. of British Columbia, Vancouver, Canada, 1195
  new at University of Cuyo, Argentina, 946
  new, established by state law (Bureau report), 655, 867
  new faculty of medicine at U. of Cauca, 1282
  new, list of, *130
  new, West Virginia establishes 4 year school, 1492
  of psychosomatic pathology, Spain, 1499
  preceptorships established by certain schools, *126
  Premedical Work See Education, Medical
  preparation for general practice, 184—E
  private and governmental, *129; *130
  responsibilities for other students, *123, *124
  size of, according total enrolment, 1949-1950, *117
  size of 1950 freshman class, *126
  size, proportionate numbers of women, London, 1280
  Statistics on, September 9, 1950, page 109

and American
  tuition fees, *129
  University-Hadassah Hospital Medical School, donation to, 1281
  veterans in, *119
  visited by A.M.A., 666
  what they can do to obtain equitable distribution of physicians, 670
SCIATICA
  prolapse of intervertebral disk and, [Kroll] 879—ab
SCIENCE: See also Research
  Academy of: See Academy
  Basic Science: See Basic Science
  examination for scientists by U.S.P.H.S., 1190
  interscience committee at U. of Pennsylvania organized, 699
  Medical: See Medicine
  National Association of Science Writers, [Boles] *361
  National Science Foundation, 935; 1010; 1187
SCIENTIFIC TESTS: See Medicolegal Abstracts at end of Letter M
SCLERODERMA
  treatment, procaine, [Turner & Schmidt] *1560
SCLEROSIS: See also Arteriosclerosis; Liver cirrhosis; Nephrosclerosis; Otosclerosis
  lipogranuloma, [Smetana] 1305—ab
  multiple and retrobulbar neuritis, [Hyllestad] 1040—ab
  multiple, Dr. Hinton D. Jonez' method, 1533
  multiple, early diagnosis, 565
  multiple, lead in relation to, [Campbell] 581—ab
  multiple, National Multiple Sclerosis Society materials available; request registration of patients, [Traeger] 949—C
  multiple, relation to brucellosis, [Kyger] 1022—C
  multiple, spinal fluid in, [Weise] 277—ab
  multiple, state laws on (Bureau report), 862
  tuberous, neurilemmoblastosis, [Inglis] 786—ab
SCOLIOSIS: See Spine curvature
SCOPOLAMINE
  hydrobromide, treatment of Parkinson's disease, [Effron & Denker] *6
SCOUTS: See Boy Scouts
SCRATCH
  from cat causes adenitis, [Debre] 718—ab
SCREENING, Multiphasic: See Diagnosis
SCREWWORM infestation in man, [Taylor] 870—ab
SCROTUM
  examination by family physician, [Hess & others] *603
  implantation of penis into, [Goodwin & Thelen] *384
SEA: See Navy; Ships; Submarines
SEASONS: See also Winter
  etiology of retinal detachment, 1108
SEATS
  seating factor in spine disorders in truck and tractor drivers, [Fishbein] 1208—ab
SEATWORMS: See Oxyuriasis
SEBACEOUS Cysts: See Steatoma
SEBORRHEA
  treatment, vitamin B_{12}, [Andrews] 1126
SEBRELL, WILLIAM H., director of National Institute of Health, 472
SECURITY
  United States Department of Health, Education and Security: See United States
SEIZURES: See Convulsions; Epilepsy
SELECTIVE SERVICE: See Medical Preparedness
SEMEN: See also Spermatozoa
  Artificial Insemination: See Impregnation, artificial
  deficiencies, 1047
  morning drop for five years, 1048
SEMINAL VESICULITIS
  diagnosis, confused with appendicitis, [Russell] 1204—ab
SENILITY: See Old Age
SENN, NICHOLAS, founded Association of Military Surgeons 59 years ago, 1184—E
SENSATION
  sudden, of rotation of objects, 1326
SENSES: See Hearing; Vision
on: See Allergy
mia
Cancer diagnosis; diagnosis
Products; Antiserum; Vaccine
  Antireticular Cytotoxic Serum: See Bogomolets
  dry, inoculation hepatitis in patients treated with, [Kjaergaard] 1133—ab
  hyperimmune human, and streptomycin in whooping cough, [Hatz] 1409—ab
  plasma, homologous serum jaundice, [Runyan & others] *1065
  plasma (irradiated), hepatitis after, [Rosenthal & others] *224; [Barnett & others] *266; [James & others] *228; 241—E; 511; [Lipman] *1090
SERUM—Continued
  plasma, *Lyovac normal human plasma*, N.N.R. (description), 760; (Sharp & Dohme) 760
  plasma, storage, relation to homologous serum jaundice, [Allen & others] *1060
  Plasma Transfusion: See Blood Transfusion, of plasma
  test for active tuberculosis, [Smith] 412—C
  Therapy: See Hemotherapy
SERVICEMEN: See Medical Preparedness; Veterans
SEVINON: See Acid, undecylinic
SEX: See also Fertility; Reproduction; Sterility; Sterilization, Sexual
  aggression after vasectomy, 721
  criminal, book on, [Guttmacher] 1586—C
  Desire: See Libido
  education, Human Beginnings, (film review) 1507
  effects of vasectomy, [Garrison & Gamble] *293; [O'Conor] 1502—C
  Function, Decline of: See Menopause
  Glands: See Gonads
  homosexuality is not hereditary, 1536
  Hormones: See also Androgens; Estrogenic Substances; Gonadotropins
  hormones, effect on presbyacusia, [Kroath] 588—ab
  Impotence: See Impotence
  Intercourse: See Coitus
  Intergrades: See Hermaphroditism
  Masculinization: See Virilism
  Offenses: See Rape
  Organs: See Genitals
SEXUAL STERILIZATION: See Sterilization, Sexual
SHAKESPEARE, WILLIAM
  knowledge of chest diseases, [Vest] *1232
SHEININ Lecture: See Lectures
SHERMAN ANTI-TRUST ACT
  Oregon State Medical Society, 552—E; 555
  restraint of trade in relation to prepayment plans and codes of medical ethics (Bureau report), 653
SHIPS: See also Navy; Submarines
  doctors wanted by U. S. Navy, 1271
  hospital, for Korea from Denmark, 1583
  passengers, vaccination for smallpox, [Maguire] 707—C
SHOCK
  Allergic: See Allergy
  Electric: See Electric shock
  electrolytes in, importance, especially sodium, [Rosenthal & Tabr] 413—C; [Unger] 1502—C
  fatal postoperative, [Hasche-Klünder] 962—ab
  phlegmasia cerulea dolens with, [Perlow] *1257
  Therapeutic: See also Electric shock treatment; Insulin shock
  therapeutic, [Burlingame] *1368
  transfusion, cause of irregular agglutinins in, [Steinman] 880—ab
SHOE Polish, chemicals used in, 1535
SHORT WAVE: See Diathermy
SHOULDER
  pain after coronary attack, 1324
  painful, due to allergy to milk and cheese, [Castex] 963—ab
  shoulder-hand syndrome, [Bayles & others] *537
SHRINKAGE of removed organs, 726
SICK: See Disease, chronic; Patients
  Headache: See Migraine
  Transport of: See Ambulances
SICKLEMIA: See Anemia, sickle cell
SICKNESS: See Convalescence; Disease; Health; Hospitals; Therapeutics
  Insurance: See Insurance, sickness
  Prevention: See Preventive Medicine
SIGHT: See Vision
SIGMOID: See Colon; Rectosigmoid Region
SILICOSIS: See Pneumoconiosis
SILVER STAR Medal: See World War II, Heroes
SILVERTONE Hearing Aid, Model M-35, 1181
  Hearing Aid, Model P-15, 1375
SILVESTER Method: See Respiration, artificial
SIMS, J. MARION
  experience in tolerance to alcohol, [Johnson] 412—C
  radio program on medical history, 939
SINAN, N.N.R., [Warren-Teed] 314
SINUS
  Carotid Sinus: See Carotid Sinus
SINUSES, NASAL
  infections, antibiotic aerosols for, *32; [Prigal & Molomut] *897
  infection, ingesting milk increases secretion from respiratory mucous membrane, 1048
  nocturnal postnasal drip, 1420
  surgery and treatment, [Johnston] *977
SITTING: See Seats
SJÖGREN'S SYNDROME, [Touraine] 350—ab; [Cooperman] 578—ab
SKELETON: See Bones
SKIN: See also Dermatology; Tissues
  Burn: See Burns
  complications of cortisone and ACTH therapy, [Behrman & Goodman] *218
SKIN—Continued
  Creams or Cosmetics: See Cosmetics
  Dermatomyositis: See Dermatomyositis
  Disease: See also Dermatitis; Eczema; Urticaria
  Disease (Industrial): See Industrial Dermatoses
  eosinophilic granuloma, [Lever] 489—ab
  Exfoliation: See Dermatitis exfoliativa
  graft, tubed pedicle, in reconstructions on head and neck, [Catlin] 1307—ab
  grafting for extensive burns, [Denman] 206—ab
  grafting, pedicled flaps for crural ulcer, [Brummelkamp] 429—ab
  grafting, plastic reconstruction of penile skin, [Goodwin & Thelen] *384
  Hemorrhage: See Purpura
  Inflammation: See Dermatitis
  iron loss through, 47—E
  Itching: See Eczema; Pruritus; Scabies
  keloidian blastomycosis, 1584
  Leishmaniasis: See Leishmaniasis, cutaneous
  Mycosis: See Mycosis
  pigmentation after treatment for acne, 1420
  Reaction: See Allergy; Dermatitis venenata; Skin test; Tuberculin; Urticaria
  regeneration, committee on, Texas, 1193
  Scleroderma: See Scleroderma
  tanning, 975
  Test: See also Tuberculin
  test for diagnosis of pregnancy, present status, 1118
  test, in food allergy, [Leibowitz & others] *989
  test, reaction to Brucella antigens, [Kyger] 1022—C
  Transplantation: See Skin grafting
  tumors from treatment with Beta rays, [Stillians] *743
  Ulcers: See Ulcers
  vitamin A deficiency effect on, [Youmans] *36
SLEEP: See also Unconsciousness
  disorders, treatment of narcolepsy, 358
  Induced: See Anesthesia
  snoring: cause; prevention, 886
SLEEPING SICKNESS: See Trypanosomiasis
SLUDGED Blood: See Blood
SMALLPOX
  control, WHO to aid in eradication, Latin America, 58
  diagnosis, vaccinia simulating variola in eczematous child, [Good] 499—ab
  Vaccination: See also Vaccinia
  vaccination, eczema successfully treated with chloramphenicol, [Fasal] *759
  vaccination of ship passengers, [Maguire] 707—C
  vaccination, rheumatic fever reactivated by, [Freud] 266—ab
  vaccination, unsuccessful in 15 month old child, 1048
  vaccine treatment of tuberculosis, 598
  vaccine treatment of ulcers in mouth and throat, 1419
SMELL: See Odor
SMITH, Kline and French Laboratories awarded prize for television broadcasts, 1194
SMOG
  poisonous, kills 15 in Mexico, 1493
SMOKING: See Tobacco
SMOTHERING: See Suffocation
SNAILS
  2 new vectors of Schistosoma Mansoni, 1584
SNORING
  cause; prevention, 886
SNORKEL, medical problems encountered in undersea craft, [Pugh] *231
SOCIAL
  pediatrics seminar of, Switzerland, 778
  welfare convention, Italy, 859
SOCIALIZED MEDICINE: See Hospitals, expense insurance; Insurance, sickness; Medicine, socialized; Medicine, state
SOCIETIES, MEDICAL: See also American Medical Association; under names of specific societies; list of Societies at end of letter S
  annual meetings in Brussels, 567
  Baltimore City Medical Society comics to combat state medicine, 46—E
  county, centennial celebration, Adams County, Illinois, 401
  county, Medical Society of County of New York establishes emergency service, 324
  county, Santa Clara (California), 243—E
  International Meetings of Verona, 1019; 1498
  Plans for Medical Service: See Medical Service Plans
  Society of Nepiology, first scientific meeting in Turin, Italy, 704
  state, activities of, in chronic illness planning, 1262—E
  state, A.M.A. legislative problems discussed with, 768
  state, centennial, Pennsylvania, 403
  state, committee report on New Mexico State Hospital, 191

SOCIETIES, MEDICAL—Continued
  state, county and special, what they can do to obtain equal distribution of physicians, 670
  state grievance committee, West Virginia, 56
  state, grievance committees (Council report), 247, 668
  state, grievance committees, complaints against physicians heard by, 691—E
  state, grievance committees, what community expects of the doctor, [Seltzer] *1573
  state, home for, Massachusetts, 249
  state monthly series of telephone seminars, Indiana, 1102
  state, rural health conference (Indiana), 249, (Wisconsin) 250
  Woman's Auxiliary · See Woman's Auxiliary
SODA
  Baking See Sodium bicarbonate
SODIUM
  acetrizoate, N N R. (description), 623; (Mallinckrodt) 623
  para aminobenzoate omitted from N N R, 927
  amytal as causative factor in prolonged insulin coma, [White] 1209—ab
  antimony gluconate (trivalent) in schistosomiasis, [Erfan] 877—ab
  ascorbate, N N R (Testagar), 385
  ascorbate with benzyl alcohol, N N R. (Carlo Erba), 385
  bicarbonate, alkali-plasma transfusion, [Bucher] 880—ab
  bicarbonate, Sul-Di-Mill with, N N R (Miller) 1465
  bromite danger of poisoning from in home cold permanent waving kits, 397—E, (antidotes for) [Brunner] 1283—C
  Chloride See also Salt
  chloride and water, effect of ACTH and cortisone, [Sprague & others] *1314
  chloride deficit and excess, dehydration and overhydration from, [Scribner & others] *1172
  chloride, induce subcutaneous nodules in rheumatic fever with, [Massell] 422—ab
  chloride, postoperative use and plasma volume, [Aquilina] 1591—ab
  citrate plus streptomycin in tuberculous empyema, [Staines] 120—ab
  citrate Duo-Sulfanyl with, N N R, (Funk) 1465
  deficiency in surgical patients, [Randall] 1308—ab
  electrolytes in shock, [Rosenthal & Tabor] 113—C, [Hurley] 1502—C
  gentisate in acute articular rheumatism, [Camelin] 1039—ab
  hexametaphosphate antidote for neutralizers in cold wave, [Brunner] 1283—C
  iodomethamate, N N R (Schering), 385, 928
  Penicillin · See Penicillin G, Penicillin treatment
  perborate antidotes for neutralizers in cold wave, [Brunner] 1283—C
  Phenobarbital · See Phenobarbital
  psylliate, N N R (description), 760; (Searle) 760
  salicylate, does prolonged use have a deleterious effect on blood? 812
SOIL
  effects of organic phosphorus insecticides on, [Lehman & others] *108
SOLDIERS See Armed Forces, Army, Korean War, Veterans
SOLO-PAK Model 99 Hearing Aid, 315
SOLUSAL, [Blumencron] 1216—ab
SOLUTION See Fluids
SOMATIC Complaints See Psychosomatic Medicine
SOMMER Lectures See Lectures
SONOTONE Hearing Aid, Model 925, 315
SORBONNE Medal See Prizes
SOUND See also Heart sound, Noise
  waves, Ultrasound in Medicine (film review), 784
SOUTH AMERICAN See Latin American
SOUTHWEST Award See Prizes
SPAIN
  medical congresses held in, 567
SPASM See also Cramps, Tetany
  antispasmodics in Parkinson's disease, [Litron & Denker] *5
  of lower limbs, 725
SPASMOPHILIA See Tetany
SPASTIC Children See Paralysis, spastic
SPEAKING
  possible to increase power of speaker's voice? 1223
SPECIALTIES · See also Dermatology; Ophthalmology, Pathology
  Certification See American Board
  general practitioner relationship to, London, 1279
  physical medicine and rehabilitation in relation to other specialties, [Krusen] *727
  women specialists involuntary recall by U S Army, 471
SPECIFIC GRAVITY
  of blood, copper sulfate method for, 1223
SPEECH: See also Speaking
  defects, clinic for children, opened at New York Medical College, 771
SPERANSKY'S spinal pumping in treatment of rheumatoid arthritis, 975
SPERMATOZOA
  drugs, effect on reproduction, [Tompkins] 261—C
SPHYGMOMANOMETER
  adapted as instrument for evaluating asthenic grip, [Wainerdi] *619
SPIDER
  bite of black widow, neostigmine and atropine sulfate for, [Holloway] 1305—ab
SPINA BIFIDA
  congenital, management of urine incontinence in, 79
SPINACH, Diet-Delight Brand, 1092
SPINAL ANESTHESIA: See Anesthesia, spinal
SPINAL CANAL
  roentgenography, ethyl iodophenylundecylate, N N R, 1464; (Lafayette) 1465
SPINAL CORD
  Disease · See also Encephalomyelitis; Poliomyelitis
  disease, with dissecting aneurysm of aorta, [Moersch & Sayre] *1141
  Sclerosis · See Sclerosis, multiple
  subacute combined degeneration, 1224
  surgery, section of lateral column for tremor of Parkinsonism, [Oliver] 72—ab
  tumors, diagnosis with radiodye, [Davis & others] *1121
SPINAL FLUID See Cerebrospinal Fluid
SPINAL PUNCTURE
  advocated for every patient with cerebral thrombosis, 1533
  Speransky's treatment in rheumatoid arthritis, 975
SPINE. See also Ribs
  arthritis in children, [Saenger] 577—ab
  curvature, idiopathic scoliosis in a young girl, 1536
  disorders from truck and tractor driving, [Fishbein] 1208—ab
  intervertebral disk, absorption of protruded disk tissue, [Lindblom] 873—ab
  intervertebral disk, hernia of nucleus pulposus and trauma, [Günther] 348—ab
  intervertebral disk, herniation of nucleus pulposus, [Scholer] 589—ab
  intervertebral disk (lumbar), hernia, [Kravenbuhl] 962—ab
  intervetebral disk, prolapse and sciatica, [Kroll] 879—ab
  intervertebral disk, prolapse, new symptom in, [Kemp] 1038—ab
  intervertebral disk, ruptured, results after operative removal, [Odell] 1107—ab
  melitococcic spondylitis, 482
  rocker spine and pain in neck, 598
  spondylolisthesis, 1584
  sternal and spinal process marrow compared, [Polson] 418—ab
  tuberculosis, Pott's disease, streptomycin and paraaminosalicylic acid for, 1118
  tuberculosis, treatment of psoas abscess, [Hoover] 1127—ab
  tuberculous spondylitis, streptomycin for, 511; (vertebral), [Halzmann] 1522—ab
  tumors, episacroiliac lipomas, 811
SPIROCHETE Infection See Relapsing Fever
SPLEEN
  Excision See Splenectomy
  hypersplenism and, [Fitz-Hugh] 491—ab
  hypersplenism and primary neutropenia, [Tzanck] 1040—ab
  hypersplenism and splenectomy, [Fitz-Hugh] 491—ab
  ionizing radiation and blood-forming tissues, 1182—E
  myeloid metaplasia, [Block] 413—C
  radiation injury, relation to, [Jacobson] 205—ab
  rupture, especially delayed hemorrhage, [Dobson] 1034—ab
  ruptured, in 5 year old child, 437
  tuberculosis, in pulmonary tuberculosis, [Rodriguez Castells] 1595—ab
SPLENECTOMY
  in essential thrombopenia in children, [Stahlie] 1312—ab
SPONDYLARTHRITIS See Spine arthritis
SPONDYLITIS. See Spine
SPORTS See Athletics, Swimming
SPOTTED FEVER See Rocky Mountain Spotted Fever
SPRUE
  intestinal absorption of fats in, [Jimenez Diaz] 430—ab
  Nontropical See Celiac Disease
SPUTUM
  cytologic diagnosis of lung cancer, [Farber & others] *1
  diagnosis of lipid pneumonia from, [Losner] 336—ab
SQUIBB Award. See Prizes
STACK, ALFRED W, death, Chicago, 54
STAINING
  prostatic smears, 1325
  to identify regional lymph nodes during operation for cancer, [Weinberg] 270—ab
STANNIC OXIDE pneumoconiosis, [Dundon] 416—ab

bacterial endo-
*923
  hemolytic, role in chronic or repeated infections, [Prigal] 1585—C
STARCH-Derivative Dusting Powder, N N R (Ethicon), 385
STARIN Lecture: See Lectures
STARVATION See Fasting; Hunger
STATE
  Board: See State Board *following*
  Health Department: See Health
  Hospital. See Hospitals
  Journal Advertising Bureau, report, 637
  Legislation See Laws and Legislation
  Medicine · See Medicine, state
  Society · See Societies, Medical
STATE BOARD · See also Licensure
  internship required by, *123
  state laws on (Bureau report), 864
STATISTICS See also Schools, Medical; Vital Statistics
  public health statistician needed, Wash, 1578
  seminar for statisticians, USPHS, 400
STEAMSHIP See Ships
STEATOMA
  recurring sebaceous cysts, 975
STEATORRHEA, Idiopathic See Celiac Disease
STELLATE Ganglion: See Ganglion
STEPHENSON Resuscitator, Minuteman, 762
STERILITY · See also Impotence, Reproduc*tion*
  couple wants a child, 887
  drugs effect on, [Tompkins] 261—C
  endocrine factors in woman, [Finkler] 789—ab
  Inducing: See Sterilization, Sexual
  problem of, and family physician, [Hess & others] *604
  seminal deficiencies, 1047
  Treatment See Impregnation, artificial
STERILIZATION, BACTERIAL
  of Air · See Air disinfection
  of catheter, 211
  of lancets for puncturing ear or finger, 1226
  of water in hydrotherapeutic tank by ultra violet rays, [Jern] 1206—ab
STERILIZATION, SEXUAL See also Ovary surgery
  effects of vasectomy, [Garrison & Gamble] *293, [O'Conor] 1502—C
  preventive, in 1949, [Gamble] 783—C
  state laws on (Bureau report), 655; 866
STERNUM
  Anomalies (funnel chest) · See Thorax
  marrow and spinal process marrow compared, [Polson] 418—ab
  puncture for diagnosis of malignant tumors, [Bruggemann] 587—ab
STEROIDS See also under names of specific steroids
  excretion as aid in diagnosis, 464—ab
  hormone therapy in breast cancer metastatic to bone (Council report), [Garland & others] *997
  International Symposium on, 1274
  related to cortisone, effect of, [Hench & others] *1332
STETHOSCOPE See Auscultation
STEVENS-JOHNSON DISEASE, [Thomas] 498—ab
  treatment aureomycin, [Lowenthal] 1311—ab
STILBESTROL See Diethylstilbestrol
STILL'S DISEASE, 724
STITT, EDWARD RHODES, Naval Medical School library renamed for, 1190
STOCKPILE of Medical Supplies See Medical Supplies
STOMACH. See also Gastrointestinal Tract
  acidity and ulcer, [Kreitner] 1316—ab
  acidity curves, [Alessandrini] 587—ab
  acidity, effect of vagotomy, [Walters] 788—ab
  acidity, sympathectomy effect on, [Smithwick] 496—ab
  cancer, [Edwards] 71—ab
  cancer in patients with pernicious anemia, [Mosbech] 1133—ab
  cancer malaria-like fever in, [Hartmann] 1594—ab
  cancer of cardia with partial thoracic stomach, [Smithers] 71—ab
  cancer, operative treatment, Sweden, 332
  cancer, ulcer of body of stomach, [Seedorff] 588—ab
  cancer, ulcerocarcinoma. surgical indication, [Dahl-Iversen] 588—ab
  Disorder See Indigestion
  Excision (Gastrectomy): See Stomach surgery
  function, effect of atropine, [Gill] 1122—ab
  Hemorrhage See Hematemesis, Peptic Ulcer
  herniation (sliding) of, into thoracic cavity, [Simmons] 871—ab
  inflammation, histology, [Doig] 425—ab
  innervation, sympathectomy effect on [Smithwick] 496—ab
  motility, effect of vagotomy, [Walters] 788—ab

- STOMACH—Continued
  - perfusion in severe chronic uremia, [Maluf] 1029—ab
  - prolapse of mucosa, [Rudner] 269—ab; [Clifford] 794—ab
  - secretion, potassium vs. electrolytes and proteins in gastric juice, [Martin] 827—ab
  - Surgery: See also Peptic Ulcer surgical treatment
  - surgery, gastrectomy, London, 1198
  - surgery, paralysis of distal jejunal loop after partial gastrectomy, [Reynolds] 957—ab
  - surgery, potassium excretion after partial gastrectomy, [Wilkinson] 877—ab
  - tumors, sarcoma, [Marshall] 488—ab
  - tumors, sympathicoblastoma, [Villarreal] 276—ab
  - Ulcer: See Peptic Ulcer
- STOMATITIS
  - aphthous, ulcers in mouth and throat, 1419
  - gangrenous, reactions to penicillin, [Goldman] 1023—C
- STONES: See Calculi (cross reference)
- STOOLS: See Feces
- STORAGE: See also Banks (therapeutic) (cross reference)
  - of plasma, *relation to homologous serum* jaundice, [Allen & others] *1069
- STOVARSOL: See Acetarsone
- STREPTOBACILLUS
  - moniliformis, subacute bacterial endocarditis due to; recovery after penicillin, [Petersen & others] *621
- STREPTOCOCCUS
  - hemolyticus, gangrene of breast, streptomycin for, [Marcus] 1035—ab
  - Infections: See also Endocarditis; Rheumatic Fever; Scarlet Fever
  - infections in children's hospital, [Helbo] 966—ab
  - infections, latent and subclinical, [Helbo] 966—ab
  - sanguis in subacute bacterial endocarditis, [de Carvalho Lima] 1521—ab
- STREPTOMYCIN
  - Dihydro—: See Dihydrostreptomycin
  - sulfate, N.N.R., [Bio-Ramo] 385
  - supply, domestic prduction by months, [Boles] *362
  - synergism and antagonism, [Bigger] 716—ab
  - toxicity, can large doses cause swelling of liver? 726
  - toxicity, hypertrichosis, [Fonó] 878—ab
  - Treatment: See also Addison's Disease; Breast gangrene; Bronchus tuberculosis; Colitis ulcerative; Endocarditis; Genitourinary Tract tuberculosis; Granuloma inguinale; Influenza; Kidneys, tuberculosis; Leprosy; Liver inflammation; Meningitis, tuberculosis; Plague; Pneumonia; Relapsing Fever; Spine tuberculosis; Trachea tuberculosis; Tuberculosis; Tuberculosis of Lung; Tularemia
  - treatment, adjunct in surgical treatment of tuberculous peritonitis, [Pitchford] 872—ab
  - treatment affects skin reactivity to tuberculin, [Vaccarezza] 1595—ab
  - treatment, inhaling aerosol in pulmonary tuberculosis, [Miller] 951—ab; 1031—ab
  - treatment, inhaling aerosols in sinorespiratory infections, [Prigal & Molomut] *897
  - treatment, intermittent dosage in pulmonary tuberculosis, [Bignall] 346—ab
  - treatment plus alkalinization in tuberculous empyema, [Staines] 420—ab
  - treatment plus human hyperimmune serum in whooping cough, [Hatz] 1409—ab
  - treatment plus paraaminosalicylic acid in renal tuberculosis, 809
  - treatment plus paraaminosalicylic acid of tuberculous meningitis in children, [Rossi] 274—ab
  - treatment, plus penicillin in bacterial endocarditis, [Hunter] *521
  - treatment plus sulfadiazine and penicillin in brucellosis, [Anglesio] 1312—ab
  - treatment plus sulfapyridine, of subacute bacterial endocarditis, [Van Wijk] 275—ab
  - treatment, protection of pleura by, [Mattei] 276—ab
  - treatment, recent trends, [Kirby] *234
  - treatment, resistance of tubercle bacilli, persists, [Vaccarezza] 350—ab
  - treatment, resistance of tubercle bacilli, rapid determination, [Benda] 1039—ab
  - treatment, *Streptomycin Drugs in Treatment* of Tuberculosis (film review), 335
  - treatment, use penicillin in same syringe? 1419
- STRESS
  - adrenal cortex response to, especially potassium metabolism, [Hoagland] 495—ab
  - blood ketone levels in diabetics [Hinkle] 580—ab
  - renal circulation and, [Pfeiffer] 1514—ab
  - tests and personality survey in hypertension, [Palmer] *295
- STRUMA: See Goiter
  - Lymphomatosa: See Thyroid cirrhosis
- STUDENTS: See also Education; Schools; University
  - blood typing program at Wayne U., 1385
  - deferment of preprofessional college students, 1095—E; (Joint Committee statement), 1111
- STUDENTS—Continued
  - lung calcification in, [Prior] 1127—ab
  - Nurses: See Nurses and Nursing
  - premedical, under Selective Service System, *110
- STUDENTS, MEDICAL: See also Education, Medical; Graduates; Interns and Internships; Schools, Medical
  - "A" students only accepted; general misunderstanding about qualifications, *125; 183—E
  - American, to study abroad, Fulbright exchange program, 192
  - ASTP and V-12, drafting of physicians, 48
  - deferment, 693; 1095—E; (Joint Committee statement), 1111
  - deferment, general policies and procedures in U.S. Navy, 51
  - drafting, under Selective Service System, *110; *662
  - enrolments 1949-1950, *116; *117
  - Fees: See Schools, Medical, tuition fees
  - Fellowships: See Fellowships
  - Foreign: See Physicians, foreign
  - freshman, geographic source 1949-1950, *119; *120; *122
  - health units employ, Kentucky, 54
  - in Mississippi, [Voskamp] 486—C
  - in required intern year in U.S., *117
  - Joint Committee on Medical Education in Time of National Emergency, (statement adopted by A.M.A. Council and Association of American Medical Colleges) 1095—E; 1111
  - married, *118
  - Negro, *119
  - number 1095—E; (Joint Committee statement) 1113
  - number according sex, *118
  - number in approved schools, 1910-1950, *115
  - obligation to serve their country after graduation, 1095—E; (Joint Committee statement) 1112
  - plans for future practice, *126
  - responsibilities of medical schools for other students, *123; *124
  - Scholarships: See Scholarships
  - selection of, *125; 183—E; 1095—E; (Joint Committee statement) 1112
  - Student American Medical Association, 468—E; 694; (constitutional convention) 937
  - Teaching: See Education, Medical
  - women, *118; *119
  - women, proportionate numbers, London medical schools, 1280
- SUBARACHNOID Hemorrhage: See Meninges hemorrhage
- SUBDURAL Hematoma: See Meninges
- SUBMARINES
  - colds, incidence, in submarines, [Karsner] 233—ab
  - medical problems encountered in undersea craft, [Pugh] *230
- SUFFOCATION
  - in poliomyelitis, mechanism of, [Sjöberg] 1205—ab
- SUGAR: See also Carbohydrates; Dextrose
  - effect on alcohol content of blood, [Klein] 274—ab
  - in Blood: See Blood
  - metabolism, ACTH effect on, Italy, 1107
- SUGGESTION: See Hypnotism
- SULFADIAZINE
  - N.N.R. (Lilly), 625
  - sulfamerazine combined—N.N.R. (description), 761; (Abbott; Lilly; Rorer) 761
  - sulfamerazine-sulfa-methazine mixture, methamerdiazine, N.N.R. (McNeil), 625
  - toxicity; plasmacytosis and hyperglobulinemia, [Robertson] 1509—ab
  - treatment ineffective in Klebsiella pneumonia, [Nataro & others] *12
  - treatment of influenza, 512
  - treatment plus streptomycin and penicillin in brucellosis, [Anglesio] 1312—ab
- SULFAGUANIDINE
  - effect on bacterial flora in ulcerative colitis, [Marshall & others] *900
- SULFAMERAZINE
  - N.N.R. (Lilly), 625
  - sulfadiazine combined—N.N.R. (description), 761; (Abbott; Lilly; Rorer), 761
  - sulfadiazine-sulfa-methazine mixture, methamerdiazine, N.N.R. (McNeil), 625
- SULFAMETHAZINE
  - N.N.R. (McNeil), 625
  - treatment, complications after [Harsløf] 503—ab
- SULFANILAMIDE
  - state laws on (Bureau report), 863
- SULFAPYRIDINE
  - treatment plus streptomycin of endocarditis, [Van Wijk], 275—ab
- SULFATHIAZOLE
  - erythema nodosum in relation to, 1568—E
  - synergism and antagonism, [Bigger] 716—ab
- SULFHYDRYL (SH) GROUP
  - protect organism against X-rays, [Forssberg] 961—ab
- SULFISOXAZOLE (gantrisin)
  - agranulocytosis due to, recovery, [Haunz & others] *1179
- SULFONAMIDE COMPOUNDS
  - Dia-Mer- Sulfonamides, N.N.R., (Funk; Miller) 1465
  - Domagk report on, Italy, 1019
  - duplex, "savorets," N.N.R. (description), 761; (Lilly), 761
  - effect on thiamine economy in animals, [Kratzing] 876—ab
  - potentiation by "L substance," [Bigger] 1521—ab
  - procaine penicillin inhibit effect of, 1534
  - Sulfadiazine: See Sulfadiazine
  - Sulfaguandine: See Sulfaguanidine
  - Sulfamerazine: See Sulfamerazine
  - Sulfamethazine: See Sulfamethazine
  - Sulfanilamide: See Sulfanilamide
  - Sulfapyridine: See Sulfapyridine
  - Sulfathiazole: See Sulfathiazole
  - treatment, bacterial sensitivity to, [Schweinburg] 793—ab
  - treatment of chronic typhoid carriers, [Vaichulis] 1304—ab
  - treatment plus antiserum and antibiotics, in plague, [Meyer] *982
  - treatment plus vitamin D_2, in tuberculoid leprosy, 276—ab
  - *treatment, recent trends,* [Kirby] *233
  - treatment, recovery rate of endocarditis before and after discovery of, [Friedberg] *527
  - two new compounds introduced by Domagk, Italy, 1019
- SULFONES: See also Promin; Promizole
  - treatment of leprosy, [Sloan] 341—ab; [Johansen & Erickson] *985
  - treatment of leprosy, relapse after, [Erickson] 1127—ab
- SULFUR
  - odor of urine after eating asparagus, 1140
  - treatment in rheumatoid arthritis, 1047
- SULPHETRONE
  - treatment of leprosy, [Johansen & Erickson] *989
- SUNLAMPS: See also Ultraviolet Rays
  - minimal requirements for acceptance (Council report), 625
- SUNLIGHT
  - tuberculosis and, 887
- SUPPLIES: See Medical Supplies; Surplus Property
- SUPPURATION: See Appendicitis; Otitis Media; Ulcers
- SUPRARENALS: See Adrenals
- SUPREME COMMAND OF ALLIED POWERS (S.C.A.P.)
  - medical educators in Japan, [Long] 781—C
- SUPREME Court: See Medical Jurisprudence
- SUPRONAL
  - Domagk report, Italy, 1020
  - treatment of endocarditis lenta, [Boden] 427—ab
- SURGEONS: See also Physicians; Surgery
  - American College of Surgeons (Dr. G. W. Stephenson joins staff), 476; (to inspect hospitals), 932—E; (Dr. MacEachern retires from), 1193; (A.M.A. resolution on hospital standardization by A.H.A.), 1484; (Conference Committee on Graduate Training in Surgery), 1468—E; 1503
  - International College of, annual assembly, 405
  - Military: See Military Surgeons
  - Royal College of, trend in modern surgery, Wakeley's address, 1391
- SURGERY: See also under specific diseases, organs and operations as Cesarean Section; Peptic Ulcer, surgical treatment; Splenectomy; Stomach surgery
  - American Board of: See American Board
  - Amputation: See Amputation
  - Anesthesia in: See Anesthesia
  - asepsis, efficacy of mouth mask, [Schneider] 73—ab
  - blood volume determinations in, [Beling] 497—ab
  - bone grafts used in, preservation of, [Sicard] 502—ab
  - Chemosurgery: See Chemosurgery
  - Colvin Memorial Surgical Fund, 55
  - Conference Committee on Graduate Training in, by A.M.A. and A.C.S., 1468—E; 1503
  - diagnosis, porphyria [Calvy] 497—ab
  - Early Rising after Operation: See Convalescence
  - in allergy, Italian congress discusses, 566
  - *Inter-American Congress of (7th), Lima,* Peru, 772
  - International Congress (7th), 946
  - liver injury and repair after, [Ravdin] 1511—ab
  - major, and general practitioner, London, 1279
  - metabolic disturbances during surgical care, symposium on, 1575
  - modern trend, Wakeley's address on, 1391
  - Moving Pictures Concerned with: See Moving Pictures, Medical (Reviews)
  - Neurosurgery: See Neurosurgery
  - operating room, music in, [Pickrell] 1407—ab
  - operating rooms, safety in, 811
  - Orthopedic: See Orthopedics
  - oxygen therapy in, [Karolinska] 800—ab
  - Plastic, American Board of: See American Board

SURGERY—Continued
  plastic, Congress of Latin American Society of, 773
  plastic, Milbank Memorial fund grant to train plastic surgeons, New York, 1273
  postoperative diseases, 199
  postoperative, nutritional problems, [Kiefer & Arnold] *903
  postoperative phlebitis, [Ducuing] 276—ab
  postoperative thrombosis, and blood coagulation, [Ochsner] 203—ab
  postoperative use of sodium chloride affects plasma volume, [Aquilina] 1591—ab
  potassium deficiency in, [Marks] 953—ab
  potassium loss in, [Hoffman] *1160
  potassium therapy to prevent chloride loss [Lowe] 1406—ab
  preoperative treatment for cesarean section, 1139
  postoperative salt water retention and adrenal cortex, [Hardy] 1403—ab, [Johnson] 1511—ab
  protein metabolism in patients, [Radvin & Gimbel] *979
  Roman Surgical Society, 481
  sodium deficiency in patients, urine chloride *not guide to parenteral therapy, [Randall]* 1308—ab
  Standard Nomenclature of, 1950 revision, 635
  surgical exposure of heart in cardiac resuscitation, [Wolff] *738
  Sutures See Sutures
  thromboembolic disease problem in surgical patients, [Farmer] 1027—ab
  traumatic, course in (Okla), 403, (Calif), 853
SURGICAL Dressings See Dressings
SURPLUS PROPERTY
  Fulbright exchange program for American medical students to study abroad, 192
SUTURES
  technic for making leakproof valve in intracardiac surgery, [Thompson] *1056
SWALLOWING
  box of matches, effects, 810
  pharyngeal diverticula as cause of dysphagia, [Buckstein & Reich] *1154
SWEAT
  dermal loss of iron, 47—E
  excessive perspiration following sympathectomy, 1417
SWIFT S
  Chopped Liver and Bacon, 763
  Strained Liver and Bacon, 763
SWIMMING
  hole and poliomyelitis, 1224
  pools sterilizing water in hydrotherapeutic tank by ultraviolet rays, [Jern] 1206—ab
SWINE See Hogs
SWINEHERD'S DISEASE
  due to Leptospira pomona, 1489
SYCOSIS
  barbae cause, treatment with penicillin, x rays, diet, 512
SYLNASOL
  sodium psylliate, N N R (description), 760, (Searle), 760
SYMPATHECTOMY
  effect on innervation of stomach and gastric acidity, [Smithwick] 496—ab
  effect on micturition and ejaculation, [Retief] 960—ab
  in angina pectoris, [Kux] 1037—ab, [Evans & others] *1432
  in arteriosclerotic peripheral vascular disease, [DeBakey & others] *1227
  in hypertension masks peptic ulcer symptom, [Steinmann] 1314—ab
  in icterus due to hepatitis, Paris, France, 859, [Mallet-Guy] 1038—ab
  lumbar, circulatory changes in feet after, [Lynn] 499—ab
  lumbar, vascular tone in feet fails to return after, [Lynn] 500—ab
  lumbodorsal, for hypertension, [Simeone] 1308—ab
  medical, in hypertension with methonium compound 776, [Turner] 1310—ab, [Saville] 1311—ab, [Campbell] 1592—ab
  sweating excessive after, 1417
  thoracolumbar high in angina pectoris, [Evans & others] *1432
SYMPATHETIC See Nervous System, Sympathetic
SYMPATHICOBLASTOMA
  of stomach [Villarreal] 276—ab
SYNCHROTRON
  70 million volt, Calif , 1576
SYNCOPE
  Carotid Sinus See Carotid Sinus
SYPHILIS See also Venereal Disease, under specific organ or disease affected
  asymptomatic, 887
  Cerebrospinal See Neurosyphilis
  congenital, in only one of uniovular twins [Gahrmann] 500—ab
  Diagnosis See also Syphilis, serodiagnosis
  diagnosis, 80
  diagnosis, animal inoculation [Calkins] 578—ab
  international meetings on, 332
  latent, or false positive reaction? 1535
  serodiagnosis, latent syphilis or false positive reaction? 1535
  serodiagnosis, tests for, 258
SYPHILIS—Continued
  transfusion, arsenoxides to prevent, [Block; Fussganger] 1312—ab
  treatment, acetarsone, in congenital type, [Nyhus] 1037—ab
  treatment aureomycin, [Levaditi] 276—ab; [Olansky] 1510—ab
  treatment during pregnancy, [Macfarlane] 499—ab
  treatment, penicillin and bismuth subsalicylate, [Pardo- Castello] 1510—ab
  treatment, penicillin (PAM) single and multiple injection schedules, [Thomas] 787—ab
  treatment, penicillin resistance, Brazil, 779
  treatment, penicillin, statement by American Venereal Disease Association, 947—C
  treatment, *penicillin, 3 injections and with* 1 injection, [Wright] 1210—ab
SYPHILOLOGY
  American Academy of, 941
  American Board of See American Board
SYRINGE
  contaminated, cause of homologous serum jaundice, [Runyan & others] *1065
  transmitted jaundice hepatitis in 4 diabetics, [Sherwood] 1304—ab

SOCIETIES AND OTHER ORGANIZATIONS

Acad —Academy
Am —American
A —Association
Coll —College
Commn —Commission
Comm —Committee
Conf —Conference
Cong —Congress
Dist —District
Div —Division
Found —Foundation
Hosp —Hospital
Indust —Industrial
Inst —Institute
Internat —International
M —Medical
Med —Medicine
Nat —National
Pharm —Pharmaceutical
Phys —Physicians
Soc —Society
Surg —Surgery
Surgs —Surgeons
S —Surgical

Adair, Fred L , Found , 1013
Adams County (Ill) Health Department, 401
  County (Ill) M Soc , 401
Alameda County M A , 1013
Alameda-Contra Costa M A , 1013
Alaska Territorial M A , 57
Allergy Inst (Roosevelt Hosp) N. Y , 854
  Soc of Syracuse, 1103
Alpha Epsilon Delta, 325
  Omega Alpha, 1193, 1386
Amalgamated Clothing Workers of Am , 854
Ambulatory Fracture A , 559
Am Acad of Allergy, 1194
  Acad of Cerebral Palsy, 251
  Acad of Compensation Med , 1192
  Acad of Dermatology and Syphilology, 941
  Acad of Forensic Sciences, 1492
  Acad of General Practice Chapters Illinois, 323; Nassau County, 474, Mississippi, 938
  Acad of Ophthalmology and Otolaryngology, 325, 772
  Acad of Pediatrics, 192, 560, 699, 941, 1015
  Acad of Tropical Med , 699
  A for the Advancement of Science, 1105
  A of Blood Banks, 57
  A of Obstetricians, Gynecologists and Abdominal Surgs , 1194
  A of Orthoptic Technicians, 326
  Board of Internal Med , 325
  Board of Obstetrics and Gynecology, 401, 855
  Board of Ophthalmology, 1193
  Board of Preventive Med and Public Health, Inc , 476
  Cancer Soc , 250, 401, 477, 560, 1015, 1194, 1273, 1493
  Cancer, Soc Divs · Colorado, 190, Florida, 855, Illinois, 474, 1191, Kentucky, 1385, Lancaster County (Pa), 475, Michigan, 324, Minnesota 190, New Jersey, 250, Puerto Rico, 1274, Wisconsin, 190
  Chemical Soc , 1386, 1492
  Chemical Soc Sections Pittsburgh, 1193
  Coll of Chest Phys , 57
  Coll of Chest Phys Chapters Illinois, 938, 1272, Puerto Rico, 1274
  Coll of Phys , 558
  Coll of Phys Divs Mid-South Region, 1194; Midwest Region, 772, New Jersey Region, 698, Oklahoma-Arkansas, 251, Pacific Northwest Region, 700, Puerto Rico, 773
  Coll of Surgs , 476, 559, 773, 1015, 1193, 1194, 1387
  Comm on Maternal Welfare, Inc , 1013
  Cong of Physical Med , 404
  Council of Learned Socs , 1104
  Dermatological A , 940
  Diabetes A , 700
  Dietetic A , 192
  Federation for Clinical Research, Midwestern Section, 855
  Gastroenterological A , 325
  Goiter A , 476
  Heart A , 557, 700, 941
  Heart A Chapters Memphis, 558
  Hosp A , 251, 772
  Inst of Nutrition, 940
  Laryngological, Rhinological and Otological Soc Sections, 1272, 1579
  Legion, 1013
  M A , 54, 325, 401, 475, 557, 771, 939, 1013, 1015, 1194, 1490
  Orthoptic Council, 326, 1492
  Phys Fellowship Comm of the M A of Israel, 1194
  Psychiatric A , 251
  Public Health A , 476, 559, 773
  Red Cross, 401, 475, 476, 699, 853, 1016 1104
  Rheumatisism A , Kentucky Chapter, 698
  Roentgen Ray Soc , 1102
  Social Hygiene A , 699
  Soc for the Study of Arteriosclerosis, 476, 1386
  Soc of Anesthesiologists, 558, 700, 1194
  Soc of Clinical Pathologists, 404
  Soc of Maxillofacial Surgs , 251
  Soc of Opthalmologic and Otolaryngologic Allergy, 326
  Soc of Plastic and Reconstructive Surg , 1104
  Soc of Tropical Med , 699
  Speech and Hearing A , 772
  Trade A Executives, 699
  Trudeau Soc , 325
  Urological A Sections Northeastern, 192 South Central, 192 , Western, 938
Ancient Accepted Scottish Rite of Freemasonry *for the Northern Jurisdiction, 1492*
Arizona State Health Department, 697
Arkansas M Soc , 474
Armour and Company, 938, 1274
Arthritis and Rheumatism Found , 855
Arthritis and Rheumatism Found Chapters Illinois, 190, 1576
Asamblea Nacional de Cirujanos, 1104
Associated Press, 1493
  Hosp Service, 1386
  Research Councils, 192
A for the Aid of Crippled Children, 771
  for the Help of Retarded Children, 771
  for the Study of Internal Secretions, 559
  of Am M Colls , 325, 1104, 1274
  of Casualty and Surety Companies, 57
  of Ex-Resident and Resident Phys of the Philadelphia General Hosp , 1104
  of Inter Am Congresses, 772
  of Life Insurance M Directors, 251
  of Military Surgs of the United States 773
  of State and Territorial Health Officers, 1194
Atlanta Graduate M Assembly, 1194
Atomic Energy Commn , 940, 1384
Baltimore City Health Department, 1273
  Redevelopment Commn , 55
Banting Inst , 1387
Barbour-Randolph Tucker M Soc , 772
Baugh, Daniel, Inst of Anatomy, 1193
Belgian Gastroenterological Soc , 250
Berg Inst of Research, 1192
Berk County (Pa) M Soc , 771
Beth David Hosp Alumni A , 1273
Bethlehem Steel Company, 558
Bexar County (Texas) M Soc , 404
Board of Registration in Med , 557
Borden Found , 1274
Bordet, Jules, Inst of Brussels, 56
Boy Scouts of Am , 941
British Empire Cancer Campaign, 477
Brookhaven Nat Laboratory, 1014
Brooklyn Dermatological Soc , 1014
Brunn, Harold Inst of Cardiovascular Research, 1102
Burke County (N C) M Soc , 250
California Acad of General Practice, 697
  M A , 770
  Soc of Internal Med , 54
Carbide and Carbon Chemical Corporation, 940
CARE, 58
CARE UNESCO Book Fund, 58
Caribbean Rabies Conf , 559
Cascare County (Mont) M Soc 557
Central A of Obstetricians and Gynecologists 941
  Neuropsychiatric A , 404, 941
  New York Obstetrical and Gynecological Soc , 1273
  Soc for Clinical Research, 699, 1387
  States Soc of Indust Med and Surg , 855
Chicago Gynecological Soc , 770
  Heart A , 474, 557, 853 1576
  Inst of Med of, 697, 1102 1576
  M Soc , 401, 697, 938, 1102, 1194
  Ophthalmological Soc , 1102
  Pathological Soc , 1576
  Soc of Internal Med , 697
  Soc of Physical Med and Rehabilitation 1384
  Surg Soc , 853
  Tuberculosis Soc , 1272
  Urological Soc , 401
  University of, Cancer Research Found 1576
  Welfare Council of Metropolitan, 190
Child Welfare League of Am , 1386
Chronic Disease Research Inst , 324
Cincinnati Acad of Med of, 698
Civil Service Commn , 57
Cleveland Health Museum, 1491
  Heart Soc , 1014
Coll of Am Pathologists, 404, 773
Colorado State Department of Game and Fish 1191
  State Department of Health, 401, 1191
  State M A , 249, 557, 1194, 1272
Columbia County (N Y) M Soc , 771, 939
Colvin Memorial Surg Fund, 55
Commercial Solvents Corporation, 476

Societies and Other
Comm. on Careers li
  on Conservation of
Commonwealth Fund, 250, 1273
Conf. of State and Provincial Public Health Laboratory Directors, 1271
  on Premedical Education, 325
Cong., Fifth, of the Latin-Am. Soc. of Plastic Surg., 773
Connecticut Commn. on Alcoholism, 1192
  State Department of Health, 770
  State M. Soc., 1381, 1190
Contra Costa County (Calif.) M. Soc., 1013
Coordinating Council for Cerebral Palsy, 102
Council of Social Agencies, 190
  of Regional Hosps., 1577
  on Nursing Education, 1381
Crawford County (Pa.) Cancer Unit, 558
Cuban Soc. of Anesthesiology, 853
Dallas County (Texas) M. Soc., 191
  Soc. for Crippled Children, 403
  Southern Clinical Soc., 250
Dane County (Wis.) M. Soc., 855
Davidson County (Tenn.) M. Soc., 939
Delaware, M. Soc. of, 219, 1272
Delta Gamma Fraternity, 1192
Denver County (Colo.) M. Soc., 190
Des Moines, M. Study Club, 938
Detroit, Acad. of General Practice of, 938
  Board of Education, 402
District of Columbia, M. Soc. of the, 323, 557, 1194
Dubuque County (Ia.) M. Soc., 402
Erie County (Pa.) M. Soc., 1193
Expert Panel on Brucellosis, 1275
Family Service of Oakland County (Mich.), 1192
Federal Housing Authority, 1192
Federation for Clinical Research, 699
Florida, State Board of Health of, 401, 855
  M. Soc., 697, 855
  Soc. of Ophthalmology and Otolaryngology, 1272
Food and Agricultural Organization, 1275, 1577
French Soc. of Dermatology and Syphilology, 250
Fulton County (N. Y.) M. Soc., 475
General Motors, 1577
Geneva (N. Y.) Acad. of Med., 475, 1011
Georgia, Fifth Dist. M. Soc., 51
  Heart A., 54
  State Board of Health of, 401
German Cardiological A., 700
Gerontological Soc., 699
Gorgas Memorial Inst. of Tropical and Preventive Med., 1272
  Memorial Laboratory of Tropical Research, 1272
Graduate Fortnight, 191, 326
Greene County (N. Y.) M. Soc., 175
Gulf Coast Clinical Soc., 941
  Coast Regional Conf. on Indust. Health, 192
Harrison County (W. Va.) M. Soc., 401
Hartford M. Soc., 770
Hawaiian Sugar Planters' A., 772
Health Information Found, 325
  Organization of the League of Nations, 1387
Hematology Research Found., 471
Herkimer County (N. Y.) M. Soc., 475
House Officers A. of the Boston City Hosp., 938
Idaho Falls M. Soc., 1013
  State M. A., 249, 1013, 1102
Ill. Soc. of Pathologists, 773
  State Commn. for Handicapped Children, 401
  State Dental Soc., 401
  State Department of Public Health, 557, 770, 1490
  State M. Soc., 401
  State Tuberculosis Soc.; 401
India, Tuberculosis A. of, 58
Indian Health Ministry, 58
  Health Services, 1195
Indiana Commn. on Chronic Illness, 557
  General Assembly, 697, 1385
  Public Health A., 190
  State M. A., 54, 190, 219, 401, 697, 1102
  Tenth Dist. M. Soc., 54
Indianapolis M. Soc., 855
  Obstetrical and Gynecological Soc., 557
Indust. Hygiene Found. of Am., 1015, 1578
Inland Steel Company, 190
Inst. of Indust. Med., 939, 1191
  of Internat. Education, 192
  of Living, 938
  of Physical Med. and Rehabilitation, 402, 771, 1273
  of Radiobiology and Brophysics, 1577
Inter-Am. Cong. of Surg., Seventh, 772
Inter-Am. Comm. on Brucellosis, 560
  Cong. on Brucellosis, 560, 1274
Internat., Fifth, Cancer Cong., 1194
  Coll. of Surgs., 1194
  Coll. of Surgs. Chapters: Southern, 1492; U. S., 405
  Hematological Cong., 475
  Ladies' Garment Workers' Union, 854
  M. Assembly, 559
  Physiological Cong., 475
  Post-Graduate M. Assembly of Southwest Texas, 1386
  Soc. for the Welfare of Cripples, 1386
  Soc. of Cardiology, 699
  Spanish Speaking A. of Phys., 1015
  Union Against Tuberculosis, 1104
Interstate Postgraduate M. A. of North Am., 559
Iowa Trudeau Soc., 102
Israel M. A., 1191
Isthmian Canal Zone, M. A. of the, 1193
Italian Soc. of Dermatology and Syphilology, 558
Jackson County (Mo.) Health Forum, 55
Jefferson County (Ky.) M. Soc., 1191
  County (N. Y.) M. Soc., 475, 1011
Joint Commn. for the Improvement and Care of the Patient, 1191
Joseph, Albert G., Cancer Research Found., 1191
Kanawha (W. Va.) M. Soc., 325
Kansas City Southwest Clinical Soc., 55, 402
Kappa Kappa Gamma, 1386
Kellogg, W. K., Found., 1191
Kentucky Child Health Found., 1101
  Psychiatric A., 698
  Rural, M. Scholarship Fund, 1272
  Soc. for Crippled Children, 1191
  Soc. of Pathologists, 770
  State Department of Health, 323, 1385
  State M. A., 698, 770
  State M. Research Commn., 1385
  Surgical Soc., 321
Kings County (N. Y.) Radiological Soc., 851
Latin Am. Cong. of Orthopedics and Traumatology, 1016
Lena Invalid Aid Soc., 771
Les Passees, 405
Levinson, Dr. Julian D., Memorial Found., 853
Licking Valley (Ky.) M. Soc., 698
Life Insurance M. Research Fund, 560, 772
Lilly, Eli, and Company, 323
Linn County (Ia.) M. Soc., 402, 938
Los Angeles County X-Ray Survey Found, 697
  Urological Soc., 938
  Welfare Council of Metropolitan, 1576
Louisiana Heart A., 55
Louisville (Ky.) Soc. of Phys. and Surgs., 1191
Lovelace Found. for M. Education and Research, 1192
Mahoning County (Ohio) M. Soc., 403
  County M. Service Found., 403
Markle, John and Mary R., Found., 251, 1101
Maryland Health Department, 1191
  M. and Chirurgical Faculty of, 1191
  Soc. of Pathologists, 1191
  State Legislature, 55
Massachusetts Department of Public Health, 940, 1191
  M. Soc., 219, 321, 557, 1273
  Soc. of Anesthesiologists, 1013
  Soc. of Examining Phys., 853
M. Careers Conf., 1193
  Film Inst. of the A. of Am. M. Colleges, 560
  Reserve Corps, 475
  Soc. of Analytical Psychology, 1578
  Soc. of Milwaukee County, 1274
  Women's Internat. A., 58
Mellon Inst., 1578
Memphis County (Tenn.) Health Department, 475
Mental Hosp. Inst., 251
Mercy Hosp. Internes and Residents Alumni A., 401
Metropolitan Life Insurance Company, 57, 476, 559, 560
Michigan Cancer Conf., 324
  Department of Health, 321, 770, 853, 938, 1102
  Heart A., 853
  Public Health Conf., 1103
  State M. Soc., 55, 324, 853, 1103
  University of, M. Alumni, 190
  United Health and Welfare Fund of, 1577
Milbank Memorial Fund, 1273
Minnesota State Board of Health, 190
  State M. Soc., 190
Mississippi Valley Conf. on Tuberculosis, 1386
Missouri State M. A., 771, 1194
Monroe County (N. Y.) Red Cross Public Health Nursing Service, 1101
Montana State M. A., 1491
Montreal Clinical Soc., 405
Muscular Dystrophy Research Found., 192
Nashville Acad. of Med., 939
Nat. Acad. of Sciences, 559, 940
  A. for Mental Health, Inc., 910
  A. of Manufacturers, 57
  Broadcasting Company, 1194
  Comm. for Mental Hygiene, 940
  Comm. for the Improvement of Nursing, 1194
  Cong. of Occupational Med., 326
  Council to Combat Blindness, 1016
  Found. for Infantile Paralysis, 54, 401, 698, 1384
  French Gastroenterological Soc., 250
  Gastroenterological A., 401
  Health Council, 855, 1491
  Heart Inst., 1272
  Inst. for M. Research (London), 1387
  Inst. of Hygiene of Mexico City, 1195
  Insts. of Health, 771, 940
  Malaria Soc., 699, 1194
  Mental Health Found., 940
  Multiple Sclerosis Soc., 1579
  Rehabilitation A., 405
Research Council, 56, 477, 559, 560, 1493, 1579
  Safety Council, 192, 560, 1015
  Security Resources Board, 475
  Soc. for M. Research, 1578
  Soc. for the Prevention of Blindness, 939, 1578
  Tuberculosis A., 325
Neurosurgical Soc. of Am., 57
Nevada State M. A., 403, 1385
New England Obstetrical and Gynecological Soc., 772, 1492
  England Pathological Soc., 773
  England Postgraduate Assembly, 557
  England Rheumatism Soc., 1015
  England Roentgen Ray Soc., 192
New Hampshire M. Soc., 558
New Jersey, Acad. of Med. of Northern, 938
  M. Soc. of, 250
  M.-Surg. Plan of, 1273
  State Charities Aid A., 1273
New Mexico Clinical Soc., 771
  M. Soc., 191
  State Health Department, 192
New York Acad. of Med., 191, 698, 1192, 1491
  Board of Education, 771
  City, Board of Hosps. of, 56
  City Coordinating Council of the M. Socs. of, 1273
  City Department of Health, 698, 771, 1103
  Civil Defense Commn., 1192
  Comm. on the Study of Hosp. Internships and Residencies, 1273
  Diabetes A., 1273
  Heart A., 771
  Inst. of Clinical Oral Pathology, 1014
  M. Soc. of the County of, 324, 939, 1103
  M. Soc. of the State of, 324, 475, 939, 1014, 1103, 1385, 1577
  Phys. Art Club, 1273
  Soc. for Clinical Ophthalmology, 939
  Soc. of Anesthesiologists, 853
  State A. for Crippled Children, 1103
  State Department of Health, 191, 324, 475, 939, 1014, 1103, 1192, 1273, 1385, 1491, 1577
Protein Conf., 1577
  State Department of Mental Hygiene, 56, 771
  State Soc. of Anesthesiologists, 558
  Tuberculosis and Health A., 1192
  Tuberculosis Sanatarium Conf. of Metropolitan, 1103
  University Coll. of Med. Alumni A., 930
  University Council, 939
North Carolina, M. Soc. of the State of, 771
  Board of M. Examiners, 771
North Dakota State Urological Soc., 698
North Texas-Southern Oklahoma Fall Clinical Conf., 251
Nutrition Found., Inc., 940, 1193
Oak Ridge (Tenn.) Inst. of Nuclear Studies, 1015, 1387
Oakland County (Mich.) Health Department, 1192
  County Social Welfare Board, 1192
Ohio Department of Health, 699
  Soc. of Anesthesiologists, 325
Oklahoma M. Research Found., 475
  State Department of Health, 403
  State M. A., 403
Omaha Mid-West Clinical Soc., 402
Onondaga County (N. Y.) M. Soc., 324, 1273
Oregon State Board of Health, 699
  State M. Soc., 325, 771
Owens-Illinois Glass Company, 1274
Pan Am. Conf. on Leprosy, 192
  Am. Cardiological Cong., 700
  Am. Sanitary Bureau, 58, 559, 560, 912, 1016, 1195
  Am. Sanitary Conf., 251
Passaic County (N. J.) M. Soc., Women's Auxiliary, 191
Pediatric Inst. for the General Practitioner, 249
Pennsylvania Department of Health, 403, 941
  M. Soc. of the State of, 403, 699, 1104, 1194
Peoria (Ill.) M. Soc., 938
Peruvian Acad. of Surg., 772
Phi Chi M. Fraternity, 1103
  Delta Epsilon, 401, 474, 699, 1102
Philadelphia County M. Soc., 475, 558, 941
  Department of Public Health, 558
  Metropolitan Disaster Corps, 941
Polk County (Ia.) M. Soc., 938
Post Graduate M. Assembly of South Texas, 854
Press Columnists of Iowa, 1013
  Protein Conf., 1577
Psychiatric Found., 940
Public Health Cancer A. of Am., 773, 1015
Puerto Rico, M. A. of, 1274
Queens County (N. Y.) M. Soc., 324, 939
Quincy (Ill.) Dental Study Club, 401
Radio Corp. of Am., 54
Radiological Soc. of North Am., Inc., 1104
Raleigh (N. C.) Acad. of Med., 771
Range Infirmary Corporation, 1577
Reading (Pa.) Eye, Ear, Nose and Throat Soc., 771
Rensselaer County (N. Y.) M. Soc., 324
Rheumatic Fever Research Inst. of Northwestern University, 557
Riverside County (Calif.) M. Soc., 770
Rochester (N. Y.) Acad. of Med., 1103, 1192
Rockefeller Found., 773, 856, 1490
  Inst. for M. Research, 1104
Runyon, Damon, Memorial Fund, 1385, 1493
Sacramento Soc. for M. Improvement, 770
St. Louis, General Practioners Study Club of Greater, 55, 1385
  M. Soc., 771
  Soc. for the Blind, 1578

Societies and Other Organizations—Continued
San Antonio M Found, 404
San Francisco Community Chest, 1191
  County M Soc, 1384
Santa Barbara M and S Inst, 770
Saudi Arabia, *Public Health Department of*, 1195
Schoharie County (N Y) M Soc, 939
Seaman, Louis Livingston, Fund, 698
Sharp & Dohme, Inc, 475, 1191
Shelby County (Tenn) Health Department, 475
Sloan-Kettering Inst for Cancer Research, 324, 1192, 1385
Smith, Kline and French Laboratories, 323 405, 938, 1194
Social Science Research Council, 1104
Sociedad de Estudios Medicos y Quirurgicos de Camaguey, 1105
Soc for Investigative Dermatology, 404
  for Vascular Surg, 192
  of Am Bacteriologists, 476
  of Obstetrics and Gynecology, 1016
Solomon, Dr Jerome D, Research Found, 770
South Carolina Acad of General Practice, 771
  Carolina Orthopedic A, 1491
  Carolina, State Board of Health of, 401
  Dakota State M A, 772
Southeastern States Cancer Seminar, 855
Southern California, M Research Soc of, 1384
  M A Woman's Auxiliary, 700
  M A, 700, 773
  Pacific Company, 325
  Psychiatric A, 1193
  Surg A, 1193
Southwestern M A, 559
  Surg Cong, 192, 941
Squibb, E R, & Son, 54
Sterling Winthrop Research Inst, 1192
Steuben County (N Y) M Soc, 771
Sullivan County (N Y) M Soc, 939
Syracuse (N Y) Department of Health, 1273
Taylor, Lester H, Memorial Fund, 1274
Tennessee, Cerebral Palsy Parents Council for West, 405
  State M A, 475
Territorial A of Plantation Phys, 772
Texas Acad of General Practice, 854
  Pediatric Soc, 475
  Rheumatism A, 1193
  State M A of, 191, 1194
Therapeutic Union, 405
Trexler Found, 1104
Tuskegee Inst, 1384
Twentieth Century Fund, 1194
Ulster County (N Y) M Soc, 475
Unitarian Service Comm, 58
United Cerebral Palsy A, 1015
  Nations Internat Children's Emergency Fund, 58, 403, 701, 942
  Nations Relief and Works Agency, 856
U S Atomic Energy Commn, 250, 1577
  Census Bureau, 1192
  Chamber of Commerce, 57
  Children's Bureau, 698, 1192, 1491
  Coast Guard, 941
  Department of Defense, 941
  Department of State, 58, 558, 1103
  Naval M Research Unit III, 856
  Pharmacopeial Convention, 1386
  Public Health Service, 57, 192, 193, 251 326, 405, 476, 558, 560, 698, 700, 771, 773, 855, 941, 1015, 1104, 1386, 1492
  Supreme Court, 1102
Utah State M A, 699
Utica (N Y) Acad of Med, 1014
Veterans Administration, 57
  of Foreign Wars 1013
Virginia, M Soc of, 191
  Obstetrical and Gynecological Soc 854
Warren County (N Y) M Soc, 1577
Washington (N Y) M Soc of the County of, 475
  State of, Personnel Board 1578
  State M A, 1015
Wayne County (Mich) M Soc, 938
West Virginia Acad of General Practice 404
  Cancer Soc, 404
  Citizens Health Planning Comm, 940
  Diabetes A, 404
  Heart A, 191, 1492
  State Department of Health, 772, 940
  State M A, 56, 939, 1492
  State Nutrition Comm, 772
  Tuberculosis and Health A, 56, 772
  University, Board of Governors of the, 1492
Westchester (N Y) Heart A, 56
Western Psychiatric Inst and Clinic 1578
  Surg A, 1492
Wisconsin Anti-Tuberculosis A 855
  State Board of Health, 190
  State M Soc, 190, 250, 251
Woman's Auxiliaries Colorado, 249, Delaware 249, Nevada, 403, Oregon, 325, Pennsylvania, 403
Workmen's Compensation M Advisory Board, 404
World Cardiological Cong, Second, 700
  Cong of Cardiology, First, 699
  Health Organization, 58, 251, 403, 405, 559, 701, 854, 856, 942, 1016, 1195, 1275, 1387, 1579
  M A, 1015, 1195
Wyoming State M Soc 57, 404

T

TB I-698 See Amithiozone
TEPP
  pharmacology, toxicology, [Rohwer & Haller] *104
  treatment of myasthenia gravis, [Grob] 607—ab
TACHYCARDIA
  paroxysmal, 812
TALKING See Speaking, Speech
TAMPON
  balloon tamponage for bleeding esophageal varices, [Sengstaken] 203—ab
TANNING
  chemicals used in, 1535
  of skin 975
TAPEWORM
  Life Cycle of Diphyllobothrium Latum (film review), 1024
TATTOOING
  hepatitis after, [Smith] *1074
TAX
  income, Bureau report on, 652
TAYLOR (Lester H) Fund See Foundations
TEACHING. See Education, Medical
TEAR Ducts See Lacrimal Glands
TECHNOLOGISTS
  infection of with Coxsackie viruses, [Shaw] 787—ab
  schools for, inspection of, 664, 666
  state laws on (Bureau report), 861
TEETH See also Dentistry, Gums
  abscess, diathermy for, 1046
  abscessed, 1223
  caries during and after World War II, [Alexander] 347—ab
  deciduous, eruption of 1536
  enamel erosive properties of fruits and fruit juices, [Miller] 266—ab
  extraction, aureomycin to prevent bacteremia, [Roth] 1588—ab
  requirements drastically reduced for draft inductees, 398
TELEPHONE
  seminars, monthly series, Indiana 1102
  transmission of tuberculosis, possibility, [Gemmill] 207—ab
TELEVISION
  at A M A Cleveland Clinical Session, 667, 675
  American Public Relations Association award (Silver Anvil) to Smith, Kline and French Laboratories for broadcasts, 1194
  channels for education New York Academy plea to reserve, 1491
  color televised medical seminar, Michigan, 938
  conference on obstetrics and gynecology, Loyola University, 54
  films cleared for, by A M A Committee on Medical Motion pictures, 1024
  telegnosis and videognosis for rural hospitals, [Cohen] 948—C
  program by A M A Bureau of Health Education, 636
TELEX Hearing Aid, Model 200, *103
TEMPERATURE See Cold, Heat
TEMPERATURE, BODY See also Fever
  normal rectal, of infants, 1418
  oral and rectal, of adults, (Council report) [Horvath & others] *1562
TEMPORAL BONE
  tumors, [Pallias] 588—ab
TENDONS
  quadriceps, bilateral, simultaneous and spontaneous rupture, [Wetzler & Merkow] *615
TENSION See Stress
  Premenstrual See Menstruation
TERGITOL
  treatment of osteomyelitis, [Grace] 1591—ab
TERMINOLOGY See also "Words and Phrases" under Medicolegel Abstracts at end of letter M
  Standard Nomenclature of Diseases and Operations, 1950 revision, 635
TERRAMYCIN, [Kirby] *234, [Grace] 334—C, [Bliss] 1207—ab
  treatment comparison with aureomycin and chloramphenicol, [Werner] 792—ab
  treatment of plague, [Meyer] *984
  treatment of pneumonia, [Pratt] 1210—ab
TERRY Lecture See Lectures
TEST Tube Baby See Impregnation artificial
TESTIS See also Epididymitis, Scrotum Spermatozoa
  Hormone See Androgens
  tumors (bilateral) after bilateral orchiopexy, [Kaplan & Roswit]
  undescended, with umbilical hernia in boy of 12, 1418
TESTOSTERONE See Androgens
TETANUS
  toxoid combined with diphtheria toxoids and pertussis vaccine, N N R, [Cutter] 239
  toxoid or antitoxin plus penicillin, combined injection, 1225
  toxoid, precipitated with aluminum phosphate, [McComb] 1516—ab
TETANY
  diagnosis of spasmophilic diathesis, Medicosurgical Society discusses, 1393
  parathyroid, bilateral cataracts, 809
TETRAETHYLAMMONIUM
  bromide, toxic effects, [Graham] 959—ab
TETRAETHYL PYROPHOSPHATE See TEPP
TETRALOGY of Fallot See Heart anomalies
TETRAVACCIN
  quadruple action vaccine in rheumatic cardiopathy, [Gaggini] 427—ab
TEXAS
  University of See University
THALASSEMIA See Anemia, Erythroblastic
THEELIN See Estrone
THEOPHYLLINE Ethylenediamine See Aminophylline
THEORELL, HUGO, lectures on protein, Rome 1020
THERAPEUTICS See also Baths, Blood Transfusion, Diathermy, Drugs, Occupational Therapy, Physical Therapy, Roentgen Therapy, under names of specific diseases and substances
  Bed Rest in Treatment vs Early See Convalescence
  therapeutic days in Paris, 405
THERMOTHERAPY See Diathermy, Heat therapeutic use
THIAMINE HYDROCHLORIDE
  deficiences, [Youmans] *307
  deficiency, cause of hyperglycemia [Wilder] *1236
  economy in animals, effect of sulfonamides [Kratzing] 876—ab
  N N R (Pasadena Research), 625
  phosphoric esters of and blood sugar levels 1394
THIAZOLSULFONE
  treatment of leprosy, [Johansen & Erickson] *988
THIGH
  tiny venules on 1226
THIOGLYCOLATE
  ammonium, cold wave preparations causes baldness, [Reiches & Lane] *305
THIOSEMICARBAZONE See also Amithiozone
  nonspecific action, [Heilmeyer] 427—ab
  treatment of pulmonary tuberculosis [Klee] 427—ab
  treatment of tuberculosis, [Heilmeyer] 428—ab
THIOURACIL
  Methyl See Methylthiouracil
  Propyl- See Propylthiouracil
  treatment exophthalmos from, [Maranon] 1594—ab
  treatment of hyperthyroidism complicated by pregnancy, [Bell] *1243
THORACOPLASTY See Thorax surgery
THORAX See also Hemothorax, Pneumothorax Artificial, Ribs· Sternum
  anomalies funnel chest, [Lester] 1029—ab
  anomalies, tibial graft as retrosternal support in funnel chest, [Wahren] 1311—ab
  chest diseases, essay award by American College of Chest Physicians, 57
  chest diseases, Shakespeare's knowledge of [Vest] *1232
  chest X-ray, diagnosis of pulmonary lesions [Bass] 412—C
  chest X-ray, heart disease discovered by mass radiography, Norway, 1108
  chest X-ray, 1 million, Illinois, 1490
  chest X-ray, state program, Arizona, 697
  chest X-ray survey report, by Los Angeles County X-Ray Survey Foundation 697
  disease accidentally detected [Stensrud] 275—ab
  surgery late results in thoracoplasty, [Hagn-Meincke] 420—ab
  surgery, upper partial thoracoplasty in pulmonary tuberculosis, [Zerbini] 1132—ab
  tuberculosis of wall [Hensel] 1315—ab
  tumors, Pancoast's syndrome, [Swierenga] 429—ab
THORN TEST in eosinophilia [Hernandez Morales & others] *379
THOROTRAST
  bilateral lung cancer after, [Abrahamson] 72—ab
THREADWORMS See Oxyuriasis
THREE DAY Fever, [Webb] 951—ab
THROAT See also Larynx Neck, Pharynx Tonsils
  ulcers in, 1419
THROMBIN See Antithrombin, Blood prothrombin
THROMBOCYTOPENIA See Purpura, thrombopenic
THROMBOEMBOLISM See Thrombosis
THROMBOPENIA See Purpura
THROMBOPHLEBITIS See also Phlebitis
  labor and 359
THROMBOSIS See also Phlebothrombosis Thrombophlebitis
  cerebral, anticoagulants for 812
  cerebral, cervical sympathetic block with procaine after, advocate spinal puncture 1533
  complicating auricular fibrillation, continous anticoagulant therapy, [Askey & Cherry] *97
  coronary, pain in simulates pain in pericarditis, [Porter & others] *751
  heparin tolerance (modified Waugh-Rudick test) [Soulier] 1525—ab

d coagulation, [Ochs-
ner] [illegible]
postpartum thromboembolism, treatment, [Lévy-Solal] 277—ab
reassurance after a thrombotic episode, 888
thromboembolic disease, problem in surgical patients, [Farmer] 1027—ab
treatment, dicumarol, [Pons] 273—ab
venous, anticoagulants for, [Zannini] 1311—ab
venous, alpha tocopherol (epsilan) for, [Ochsner & others] *831
venous (massive) with shock: phlegmasia cerulea dolens, [Perlow] *1257
venous, new concept, [Quick] 1591—ab
THRUSH: See Moniliasis
THYMINE
treatment of pernicious anemia and related megaloblastic anemia, [Vilter] 954—ab
THYMOMA
associated with myasthenia gravis, [Derow] 1516—ab
THYMUS
death in newborn and nurslings, [Mink] 274—ab
tumors, [Seybold] 1124—ab
THYROGLOBULINS
natural and artificial iodoproteins, 1393
THYROID: See also Goiter; Goiter, Toxic; Parathyroid
cancer metastases to lung, radioactive iodine for, [Freedberg & others] *16
cancer, prevention; cure, [Crile] 1033—ab
cancer, prolonged follow-up, [Hare] 417—ab
cirrhosis struma lymphomatosa (Hashimoto disease), [Lange] 208—ab
dried, treatment of obesity, [Edwards] 1593—ab
extract, lesser known uses, [Moehlig] 267—ab
function in hypertension, [Thompson] 872—ab
Hyperthyroidism: See Hyperthyroidism
Hypothyroidism: See Hypothyroidism
menstrual bleeding and, [Delsher] 1213—ab
radioactive iodine uptake by, [Albright] 954—ab
tumors, [Zimmerman] 340—ab
tumors, papillary, [Dargent] 798—ab
tumors, radiodine plus methylthiouracil and acetylaminofluorene induced, [Domlach] 1519—ab
THYROTOXICOSIS: See Goiter, Toxic
TIBIA
graft as retrosternal support in funnel chest, [Wahren] 1311—ab
pain in athletes, 359
TIBIONE: See Amithiozone
TIC: See Spasm
TICK
borne relapsing fever, aureomycin treatment, [Yeo] 717—ab
borne relapsing fever, streptomycin treatment, [Narain] 716—ab
Fever: See Rocky Mountain Spotted Fever
typhus, aureomycin for, [MacCallum] 586—ab
TINNITUS
aurium, cause of certain types, [Fowler] 1515—ab
aurium, treatment with vitamin A, 1225
TIREDNESS: See Fatigue
TISSUES: See also Cells; Mucous Membranes; Skin; under names of specific organs
adipose, ascorbic acid in, [Page] 1590—ab
beta-glucuronidase studies in, [Kadsen & others] *892
TITRALAC, N.N.R., (Schenley) 314
TOAD Test: See Pregnancy, diagnosis
TOBACCO: See also Nicotine
arsenic in cigarets and tobacco smoke, [Daff] 1519—ab
smoke, allergy to, 810
smoke, asthma due to allergy to, in infant, [Rosen & Levy] *620
smoker's larynx, 377—ab
smoking and cancer, [Levin] 782—C
smoking and cancer of lung, [Delbert] 64—C; 1391
smoking and cancer of respiratory system, 410
smoking, exhaustion in young business executive, [Portis & others] *1163
smoking, should tuberculous patients smoke? 437
TOCOPHEROL: See Vitamins E
TODAY'S Health: See American Medical Association
TOLSEROL: See Mephenesin
TOMATO JUICE
Sacramento Brand Dietetic Pack, 549
TOMOGRAPHY
present development; work of Vallebona, 1582
TONGUE
cancer, [Sharp] 497—ab
complications of chloramphenicol therapy, [Williams] 1510—ab
geographic, treatment of with penicillin (reply), [Shaw] 598
sore, cause, 812
TONSILLECTOMY
abscess, [Niels] 1216—ab
anesthesia for, 80
clotting tests before, 1139
death after, [Taylor] 1589—ab
dissection and removal of capsule and all tonsillar tissue (reply), [Gooch] 360
poliomyelitis survey, [Cumming] 791—ab; [Dunn] 1520—ab
tracheobronchial aspiration after, [Steele] 68—ab
TONSILS
abscess, [Niels] 1216—ab
Excision: See Tonsillectomy
treatment of acute tonsillitis with penicillin, 1583
TOOTH: See Teeth
TORULOSIS: See Cryptococcosis
TOUGAS Exercising Wheel, 929
TOXEMIA of Pregnancy: See Pregnancy
TOXIC Goiter: See Goiter, Toxic
TOXICOLOGY: See Poisoning
TOXOID: See also Diphtheria; Tetanus
precipitated with aluminum phosphate, clinical study, [McComb] 1516—ab
TOXOPLASMOSIS
in infants, [Walenz] 1409—ab
ocular manifestation, [Ullerich] 587—ab
TRACHEA
aspiration after tonsillectomy, [Steele] 68—ab
aspiration in newborn, safe and positive method, [Emerson] *613
tuberculosis, streptomycin in, [Mattson] 1130—ab
TRACHEOTOMY
in poliomyelitis, [Strobel] 1205—ab
mechanism of suffocation in poliomyelitis, [Sjoberg] 1205—ab
TRACHOMA
in refugees, campaign against, 1579
treatment, chloramphenicol, [Pijoan] 1103—ab
TRADE
Hazard; Poisoning, etc: See Industrial Diseases; Industrial Health; etc.
Unions: See Industrial Trade Unions
TRAFFIC Accidents: See Automobiles
TRAGACANTH
gum, allergy to pharmaceutical excipients, [Randolph] 1027—ab
TRAINING: See Education, Medical; Nurses and Nursing; Technologists
Transfusion
'e Aorta; Arteries; Bones banks; Grafts (cross reference); Kidneys; Muscles; Parathyroid
TRANSPORTATION: See Automobiles; Aviation; Railroads; Ships
TRANSUDATES: See Exudates
TRANSURETHRAL Resection: See Urethra surgery
TRAUMA: See also Accidents; Burns; Disasters; Fractures; Korean War; Wounds; under specific organs as Eyes
acoustic, hearing loss from, 359
cold, [Bloomfield] *290
hemothorax, final results in, [Ogilvie] 500—ab
hernia of nucleus pulposus and, [Günther] 348—ab
Industrial: See Industrial Accidents
Latin American congress of (first), 1016
rehabilitation of injured, 200
surgery course, Okla., 403
TRAVEL: See Transportation (cross reference)
TREATMENT: See Therapeutics
TREPONEMA
Pallidum Infection: See Syphilis
TRIALS: See Medical Jurisprudence
TRICHINOSIS
freezing to destroy trichinae, 212
incidence, high, USPHS, 400
outbreak, U. S., 1492
TRICHOMONAS
in urine and expressed prostate secretion, 976
urethritis or Reiter's syndrome, 1533
vaginalis, cause of burning vaginal discharge, 212
TRICUSPID VALVE
Ebstein's anomaly, [Engle] 491—ab
TRIHEXYPHENIDYL (Artane)
treatment of Parkinson's disease, [Effron & Denker] *6; [Harris] 875—ab
TRIMETON: See *Prophenpyridamine*
TRIPELENNAMINE HYDROCHLORIDE (pyribenzamine)
treatment of Parkinson's disease, [Effron & Denker] *6
TRIPPE Diaphragm Introducer, 1093
TROMBIDIOSIS
chiggers, 1324
TROPICAL DISEASE: See also Filariasis; Leishmaniasis; Malaria; Schistosomiasis
symposium, Middle East, Lebanon, 856
TROPICAL MEDICINE, *present* concepts, 198
TROPICS
vitamin C deficiency in, [Stransky] 1129—ab
TRUMAN Reorganization Plan No. 27: See United States Department of Health, Education and Security
TRUMAN, HARRY S., announcement on registration for military service, 554
TRUNCUS Arteriosus: See Heart anomalies
TRUSTEES of A.M.A.: See American Medical Association, Board of Trustees
TRYPANOSOMA
cruzi, intrauterine transmission disproved, Brazil, 1281
TRYPANOSOMIASIS
Chagas' disease in Sao Paulo, Brazil, 779
myocarditis (chronic), [Chiaverini] 502—ab
TUBE: See also Catheters
plastic tubing used in modified Crosby-Cooney technic, [Parker & Breckler] *1091
TUBERCLE BACILLUS
resistance to streptomycin, persistence of, [*Vaccarezza*] 350—ab
resistance to streptomycin, rapid determination, [Benda] 1039—ab
TUBERCULIN
negative, disseminated pulmonary calcification, [Furcolow] 582—ab
sensitivity in Boeck's sarcoid, [Bjørnstad] 1130—ab
skin reactivity to, affected by streptomycin, [*Vaccarezza*] 1595—ab
treatment of tuberculous meningitis, [Cairns & others] *92
TUBERCULOMAS
round tuberculous pulmonary lesions, [Mahon] 267—ab
TUBERCULOSIS: See also Tuberculosis of Lung; under names of specific diseases and *organs*
American Review of Tuberculosis dedicated to memory of Dr. E. R. Baldwin, 325
case finding, [Bass] 412—C
Central Anti-Tuberculosis Institute, Turkey, 1499
complications: Boeck's sarcoid, [Kalkoff] 966—*ab*
complications: indigestion, [Madsen] 800—ab
congenital, [Burgess] 205—ab
Control: See also Tuberculosis, immunization, BCG
control centers in India, 58
control, Colombia, 1109
control, state laws on (Bureau report), 654; 862
diagnosis, culturing materials, hamsters for (reply) [Rouff] 1420
diagnosis, laboratory, (film review) 1507
diagnosis, Middlebrook-Dubos hemagglutination test, [Smith] 952—ab
diagnosis, serum test for active type, [Smith] 112—C
erythema nodosum relation to, 1568—E
experimental, cortisone in mice, [Hart] 1408—ab
fellowships and research grants by National Tuberculosis Association and American Trudeau Society, 325
hospital, (dedicated, Ohio) 854; (new, Texas) 854
hospital (state) to open, Illinois, 1490
immunization, BCG, Brazil, 1281
immunization, BCG, Buenos Aires, 946
immunization, BCG, (Council report) *1260
immunization, BCG, in nursing *personnel*, [Bergsma], 799—ab
immunization, BCG, vaccinal nephritis, [*Porge*] *275—ab*
incidence, high in Manhattan, New York, 1192
incidence, increase in, situation grave in *Philadelphia*, 538
incidence, Philippines needs packages and books, 58
17-ketosteroids and, [Rivoire] 964—ab
morbidity a problem in, 1265—E
mortality, rapid decrease, Denmark, 778
National Medical Congress (11th) discusses, Turkey, 1392
National Tuberculosis Association, Norway, 1108
Prevention: See Tuberculosis, control; Tuberculosis, immunization
primary, causative agent and course, [Koch] 208—ab
smoking, should patients smoke? 437
transmission by telephone possible, [Gemmill] 207—ab
treatment, calcium indicated? 1325
treatment, amithiozone discovered by *Domagk*, Italy, 1019
treatment, smallpox vaccine, 598
treatment, streptomycin, [Heilmeyer] 428—ab; [Martin] 496—ab
treatment, streptomycin drugs (film review), 335
treatment, streptomycin in acute miliary type, 72—ab
treatment, streptomycin, paraaminosalicylic acid and thiosemicarbazone, [Heilmeyer] 428—ab
treatment, streptomycin, results 2 years later, [Steinbach] 338—ab
treatment, thiosemicarbazone compound, [Simmons] 952—ab
Trudeau society organized, Iowa, 402
Vaccine, BCG: See Tuberculosis, immunization

TUBERCULOSIS OF LUNG (pulmonary tuberculosis): See also Bronchus tuberculosis
  artificial pneumothorax in, physiologic and anatomic effect, 212
  bilateralization in, [Colantuono] 718—ab
  bronchoscopy in, 1262—E
  Case Finding: See Tuberculosis
  Cavities: See also Tuberculosis of Lung treatment
  cavities, blockage of sympathetic in, [Witte] 1315—ab
  complications: endobronchial tuberculosis [Menendez] 492—ab
  complications. tuberculosis of spleen in [Rodriguez Castells] 1595—ab
  complications: virus pneumonia, [Reimann] *81
  miliary, radiological and pathological aspects, [Emergy] 1519—ab
  round tuberculous pulmonary lesions (tuberculomas), [Mahon] 267—ab
  smoking contraindicated for patients with 437
  surgical treatment, cavernostomy for residual cavity, [Murphy] 1125—ab
  surgical treatment, temporary phrenic paralysis, [Michaelis] 348—ab
  surgical treatment, upper partial thoracoplasty [Zerbini] 1132—ab
  treatment, chemotherapeutics injected into pulmonary cavities, [Ebers] 1216—ab
  treatment, para-aminosalicylic acid, [Dooneief] 344—ab
  treatment, streptomycin, [Sangiovanni] 961—ab
  treatment, streptomycin aerosol, [Miller] 951—ab, 1031—ab
  treatment streptomycin, intermittent dosage [Bignall] 346—ab
  treatment, sunlight have beneficial effect in quiescent type? 887
  treatment, thiosemicarbazone, [Klee] 427—ab
  treatment, ultraviolet rays hazard 1419
TUBING See Tube
TUBOCURARINE
  chloride evaluation, [Unna & others] *448
"TUFTING" of terminal phalanges, 886
TUFTS Lecture See Lectures
TUITION Fees See Basic Science, Schools Medical
TULAREMIA
  diagnosis and treatment, [Taylor] 190—ab
  prophylaxis with vaccination, 1468—E
  rural water supply source of, [Jellison] 1517—ab
  treatment streptomycin, in childhood, [Levy] 1126—ab
TUMORS See also under names of specific organs and types of tumors
  Alveolar Cell See Lungs, tumors
  Malignant See Cancer, Sarcoma
  Polypous See Polyps
  Chromaffin Cell See Pheochromocytoma
  etiology, Beta rays, [Stillians] *713
  McIntire Clinic, Virginia, 191
  radioiodine plus methylthiouracil and acetylaminofluorene induce [Domach] 1519—ab
  treatment, rotation radiotherapy, 197
  Wilms See Kidneys, tumors
TURKEY
  census, 1950, 1498
  Microbiology Congress (4th) 1392
  National Medical Congress (11th), 1392
TURNER'S SYNDROME, 2 sisters with, 481
TWINS
  erythroblastosis fetalis affecting one, [McFadden] 712—ab
  of different size, 360
  uniovular, congenital syphilis in only one [Gahrmann] 500—ab
TYPHOID See also Paratyphoid
  carriers treatment antagonistic bacillus penicillin, sulfonamides, [Vaichulis] 1301—ab
  diagnosis, differentiating from virus pneumonia, [Reimann] *81
  treatment, *p*-aminosalicylic acid and its calcium salt, Italy, 1498
  treatment, chloramphenicol, [Mollaret] 1133—ab, [Sédillian] 1215—ab, [Gabinus] 1523—ab
  treatment, chloramphenicol, dosage, [Medina] 499—ab
  treatment, chloramphenicol relapses after [Laporte] 1595—ab
TYPHUS
  immunity, does produce life-long immunity? [von Bormann] 1130—ab
  immunization, vaccinal nephritis, [Porge] 275—ab
  treatment, aureomycin, of tick typhus [MacCallum] 586—ab
  treatment, chloramphenicol, [Benhamou] 275—ab
  treatment, paraaminobenzoic acid in [Chung] 798—ab

U

UN: See United Nations
UNESCO: See United Nations
ÜSTUNDAG, EKREM HAYRI minister of health, Turkey, 1392
ULCERS. See also Colitis, ulcerative, Peptic Ulcer; specific organs and regions as Mouth, Throat
  crural, pedicled flaps for, [Brummelkamp] 429—ab
  Tropical: See Leishmaniasis
  Varicose: See Varicose Veins
ULTASOUND See Sound waves
ULTRAVIOLET RAYS
  irradiated plasma, viral hepatitis transmitted by, [Rosenthal & others] *224, [Burnett & others] *226, [James & others] *228, 241—E, [Lipman] *1090
  irradiation of plasma, 511
  lamps, minimal requirements for acceptance (Council report), 625
  sterilization of water in hydrotherapeutic tank, [Jein] 1206—ab
  treatment hazard in pulmonary tuberculosis 1419
UMBILICUS
  Hernia See Hernia, umbilical
UNCONSCIOUSNESS See also Coma (cross reference); Sleep
  dissecting aneurysm of aorta with, [Moersch & Sayre] *1141
UNDERGRADUATE Work, Students, etc See Education; Education, Medical; Schools, Medical; Students, Students, Medical University
UNDERNUTRITION See Nutrition
UNDERSEA CRAFT See Submarines
UNDERTAKERS See also Medicolegal Abstracts at end of letter M
  homologous serum jaundice in, from embalming, [Runyan & others] (case 8) *1067
  sensitivity to embalming fluid, 1117
UNDULANT FEVER: See Brucellosis
UNIONS. See Industrial Trade Unions
UNITARIAN SERVICE COMMITTEE, medical mission (to Germany), 58
UNITED CEREBRAL PALSY ASSOCIATIONS Inc's Research Council, 1015
UNITED MINE WORKERS
  medical director. Dr. Morrison, 176
UNITED NATIONS
  UNESCO authorizes scientific and educational projects totaling $1,000 000, 696
  World Health Organization: See World Health Organization
UNITED STATES See also American. Federal; National
  Air Force. See Aviation, United States Air Force
  Armed Forces: See Armed Forces
  Army: See Army, U S
  Atomic Energy Commission. See Atomic Energy
  Canadian allergy map prepared by American Academy of Allergy, 1194
  Children's Bureau See Children
  Congress, Legislation considered by See Laws and Legislation, federal
  Congress, new present session, 1009, 1099, 1187
  Congress, Survey of Health Services, 1100
  Congressional Record: See Journals
  Department of Health, A M A resolution on, 1485
  Department of Health, Education and Security (Reorganization Plan No 27), 638, 651
  employees, A M A resolution on free choice of physicians for, 1172
  Food and Drug Administration See Food
  government agencies A M A resolution on inspecting, and use of medical personnel 1482
  government, aid to medical education 19 186; 638, 1476, 1182
  Government Control of Medicine See Insurance, sickness (compulsory); Medicine state
  Government Hospital Building Program See Hospitals, building, Hospitals, veterans
  government investigation, at A M A, 651
  Government position for Physicians See Physicians positions open
  Hospitals, Building Program See Hospitals
  Information Service Library, 1392
  Navy: See Navy, U S
  Pharmacopeia See Pharmacopeia
  Postoffice, A M A resolution on mail deliveries, 1481
  Public Health Service See Health, USPHS
  tax court, kickbacks contrary to public policy, 17—E
  Veterans Administration: See Veterans Administration
UMBILICUS
  Hernia See Hernia, umbilical
UNIVERSITY See also Education, Medical Schools, Medical, under names of specific universities
  Faculty See Schools, Medical
  Hadassah Hospital Medical School Israel 1281
  new academic year celebrated in Oslo, Sept 1-2, Norway, 705
  of British Columbia (new medical school opens), 1195
  of Cauca, (new faculty of medicine) Colombia, 1282
  of Chicago (homologous serum jaundice at clinics) [Allen & others] *1070
UNIVERSITY—Continued
  of Colorado (limit private practice for faculty members) 1272
  of Cuyo, Argentina, (new medical school organized), 946
  of Illinois (affiliates with St Francis Hospital, Peoria), 1013, (with Grant Hospital Chicago), 1191
  of Kansas (Battenfeld Memorial Auditorium) 249
  of Pennsylvania (organizes interscience committee), 699; (to enrol physical therapy students in February) 1578
  of Pittsburgh (Graduate School of Public Health), 558, (*begins psychiatric program*) 1578
  of Texas (open postgraduate school), 401
  of Virginia, new laboratory 404
  of Washington (School of Medicine approved) 665
  Premedical Work See under Basic Science, Education Medical, premedical
  Students See Students, Students, Medical
URACIL
  treatment of pernicious anemia, etc [Vilter] 954—ab
URECHOLINE
  trial, [Grimson] 1211—ab
UREMIA
  blood potassium levels in, [Hoffman] *1110
  fatal, after leukotomy, [McLardy] 72—ab
  lung changes in, [Bass] *819
  severe chronic, intestinal and gastric perfusion in, [Maluf] 1029—ab
URETERS
  postcaval, [Olson] 581—ab
URETHRA
  disorders, in general practice, [Hess & others] *603
  Inflammation (nonspecific): See Urethritis
  surgery, transurethral resection for urinary retention in women, [Emmett] 121—ab
URETHRITIS
  Gonococcic See Gonorrhea
  nonspecific, treatment, 1048
  trichomonas or Reiter's syndrome 1533
URINARY SYSTEM: See also Bladder, Kidneys, Ureters; Urethra
  calculi, calcium metabolism with calcium poor diet, [Fontaine] 801—ab
  disease in general practice, [Hess & others] *602
  infections, misconceptions in [Cook] *1421
  suppression and glaucoma, 607—ab
URINATION: See also Urine incontinence Urine, suppression
  frequent, causes of, 1323
  Inducing. See Diuretics
  sympathectomy effect on, [Retief] 960—ab
URINE
  chloride no guide to sodium deficiency in *surgical patients, [Randall] 1308—ab*
  cortisone-active material in burns, [Crassweller] 959—ab
  diastase, diagnosis in acute pancreatitis [Rlisfeldt] 349—ab
  Hormone excreted by Pregnant Women See Gonadotropins, chorionic
  hormone studies in pheochromocytoma, [Koffler] 1028—ab
  incontinence, management in congenital spina bifida, 79
  17-ketosteroids, affected by cortisone [Sprague & others] *1345
  17-ketosteroids and tuberculosis, [Rivoire] 964—ab
  17-ketosteroids, excretion as aid in diagnosis 161—ab
  17-ketosteroids and 11-oxycorticosteroids excretion in peptic ulcer, [Sandweiss & others] *1437
  17-ketosteroids in functional tumor of adrenal cortex in male child aged 6, [Lynch] *921
  lead in, polarographic determination [Baker] 198—ab
  lead in, rapid test for, 1225
  odor after eating asparagus, 1140
  phosphorus, aluminum gels effect on [Short & Carter] *1549
  Red Pigment in: See Porphyria
  Sugar: See Diabetes Mellitus
  suppression, treatment in women by transurethral resection, [Emmett] 121—ab
  trichomonads in, 976
UROGENITAL SYSTEM: See Genitourinary *System, Urinary System*
UROGRAPHY
  sodium acetrizoate N N R (description) 625, [Mallinckrodt] 623
UROKON, sodium, N N R (description), 625 [Mallinckrodt] 623
UROLITHIASIS See Urinary System calculi
UROLOGY
  American Board of. See American Board
  general practitioner as urologists, [Hess & others] *601
  misconceptions in, [Cook] *1421
URTICARIA
  reactions to penicillin, [Goldman] 1023
  recurring, 886
UTERUS. See also Placenta
  cancer (adenocarcinoma), genital smears to diagnose, [Cuyler] 1516—ab
  cancer, beta-glucuronidases studies [Kasdon & others] *892

UTERUS—Continued
  cancer (cervical) analysis of 1,037 cases, [Di Palma] 137—ab
  cancer (cervical) in first year of life [Heckel] 122—ab
  cancer (cervical) normal pathway for tumor spread [Arneson] 67—ab
  cancer delay in diagnosis Sweden 945
  cancer Diagnosis of Uterine Malignancies (film review) 1100
  cancer total uterine sampling of cytological detection [Doyle] 937—ab
  cervix biopsy with Gusberg special coning curet 726
  contractions active principle in parturition [Hanon] 277—ab
  excision shrinkage of removed organs 720
  excision vaginal prolapse after hysterectomy 1420
  Hemorrhage (Functional) See Menstruation
  Hydatiform Mole See Placenta tumors
  intrauterine transmission of schizotrypanum cruzi disproved Brazil 1281
  Mucosa See Endometrium
  prolapse of the adnexa 725
  rupture by twisted fibroid [Kaye & Hennon] *616
UVEITIS
  cause of massive separation of retina [Heath] *1118
  chronic use of ACTH 510

V

VACCINATION See also Immunization, under names of specific diseases as Smallpox Tularemia
  BCG See Tuberculosis immunization
  nephritis [Porge] 275—ab
  state laws on (Bureau report), 862
VACCINE See also under names of specific diseases as Influenza Whooping Cough
  BCG See Tuberculosis Immunization
  quadruple action in rheumatic cardiopathy, [Gaggini] 127—ab
VACCINIA
  generalized [Ferlozi] 314—ab
  simulating variola in eczematous child [Good] 499—ab
VAGINA
  absence associated with sliding hernia of ovary, [Beck] *162
  excessive desquamation of epithelium 286
  Inflammation See Vulvovaginitis
  pinworm infestation 976
  prolapse after vaginal hysterectomy 1420
  secretion, beta- glucuronidase studies in cancer of cervix [Kadsch & others] *802
  secretion, burning discharge 212
  smear in abortion [Benson] 955—ab
  smears and hormonal *elimination* during *menstrual* cycle, 484
  smears to diagnose adenocarcinoma of uterus [Cutler] 1516—ab
VAGINITIS See Vulvovaginitis
VAGOTOMY See Nerves vagotomy
VALLEBONA Professor, development of tomography 1582
VALLEY *Fever* See *Coccidioidomycosis*
VALVULOTOME
  use in congenital pulmonary stenosis [Potts & others] *9
VALVULOTOMY See Heart surgery
VAN METER Award See Prizes
VARICELLA *See Chickenpox*
VARICOSE VEINS
  bleeding esophageal balloon tamponage for, [*Sengstaken*] 203—ab
  gravitational leg syndromes, [*Girdwood*] 1129—ab
  treatment, sodium *psyllate* N.N.R., 761
  ulcer, popliteal vein division *for*, [Bauer] 959—ab
VARIOLA See Smallpox
VASCULAR See Blood Vessels
VASECTOMY
  sexual aggression *after*, 721
  sexual effects [Garrison & Gamble] *293 [O'Conor] 1302—C
VASOMOTOR SYSTEM
  vasoconstriction released with papaverine and nicotine [Crowley] 124—ab
VEGETABLES See *also* Potatoes
  Heinz strained, and beef 519
  Libby's Junior Foods 847 928
  Monarch Brand Dietetic Pack 1092
VEGETATIVE Nervous System See Nervous System, Sympathetic
VEHICLE
  used for penicillin [Bunn & *others*] *1511
VEINS See also Blood Vessels
  Caval See Vena Cava
  Fistula See Fistula, *arteriovenous*
  Inflammation See Phlebitis, Thrombophlebitis
  jugular carotid artery *anastomosis* for mental retardation [McKhann] 1403—ab
  popliteal division for varicose ulcer, [Bauer] 959—ab
  Portal See Portal Vein
  Thrombosis See Thrombosis
  tiny venules on thighs 1226
  Varicose See Varicose Veins
VENA CAVA
  inferior ligation in decompensated heart disease [Donzelot] 945—ab
  superior ligature of [Strahberger] 1525—ab
  surgical treatment of portal hypertension, [Longmire] 1207—ab
VENEREAL DISEASE See also Gonorrhea Lymphogranuloma Venereum Syphilis
  American Venereal Disease Association statement on penicillin in syphilis 917—C
  control by WHO 756
  postgraduate course for physicians 696
VENESECTION
  phlebotomy, hematopoiesis following [Finch] 1124—ab
VERATRUM VIRIDE
  veriloid treatment of hypertension, advise caution! [Freis] 1023—C
VERITAS KREME applicator plunger applicator N.N.R. 11
VERRUCA
  plantar warts 888
  treatment of warts 118
  types of dermatologic problem [Lane] *1361
VERTEBRA See Spine
VERTIGO
  aural operation for Meniere's disease [Lempert] 195—ab
VESICULITIS See Seminal Vesiculitis
VETERANS
  in medical school *119
  Medical Care See also Hospitals veterans
  medical care of A.M.A. Committee *on to be* changed to Council on Federal Medical Services (*report*) 1178
  medical care of dependents action of committee on 48
  medical care (outpatient) without regard to *service connection* C O 1181
  rehabilitation Connecticut study [Covalt] *1219
  roentgen films facsimiles of 1575
VETERANS ADMINISTRATION
  consultants appointed 1575
  Hospitals under control of See *Hospitals*, veterans
  physicians urgently needed by 173
  policy Committee recommends changes in 851
  Voluntary Service Advisory Committee 1010
  World War II benefits authorized for, 138
VIENNA
  medical practice in [Vogl] 344—C
VINYL ETHER See Anesthesia
VINYLITE
  toxicity 211
VIOFORM
  iodochlorhydroxyquin not irritating when given rectally, [Lewis & Leale] 949—C
VIRGINIA
  University of See University
VIRILISM See also Hermaphroditism
  treatment ACTH [Soffer] 312—*ab*
VIRUS See also Influenza Poliomyelitis
  Coxsackie See Coxsackie Disease
  disease cockroach vectors of, 1185—E
  diseases milk borne immunity against 1379—E
  genes resemblance to viruses 896—ab
  Hepatitis See Liver inflammation
  Hodgkin's disease 764—E
  Laboratories See Laboratories
  new disease [Rasmussen] 719—ab
  Pneumonia See Pneumonia, atypical primary
  preservation methods and homologous serum jaundice [Allen & others] *1069
VISAMMIN (Khellin)
  effect on cardiac pain by daily *report card* method [Cattell] *891
  effect on coronary artery *insufficiency* [*Best*] 1512—ab
  treatment of angina pectoris [Greiner] 1024—ab [Armbrust] 1202—*ab*
VISCERA
  distended and cardiac disturbances 512
VISION See also Eyes Ophthalmology
  complications of diabetes mellitus [Knauer] 1122—*ab*
  Dark Adaptation See Eyes accommodation
  failing vision caused by bony spike compressing optic nerve [Falconer] 207—ab
  Good Lite Portable Visual Acuity Chart, 928
  Loss of See Blindness
  partial loss compensation in 1119
  when does an infant see? 510
VISUAL EDUCATION See Moving Pictures
VITAL STATISTICS
  Death Rate See also Accidents *fatal*, Death cause of, Infants *mortality* Maternity mortality, Physicians deaths, under names of specific diseases
  death leading causes of in children [Dietrich] *1175, 1193—E
  death rate (female) decrease in, 1489
VITAMINS
  absorption and antibiotics by mouth 1224
  fat soluble deficiencies [Youmans] *34
  supplements in management of jaundice [*Steigmann*] *1078
  therapy in tuberculosis of genitourinary *tract* [Stobbaerts] 1040—ab
  water soluble deficiencies [Youmans] *386
VITAMINS A
  absorption 318—E
  dark adaptation and [Youmans] *34
  deficiency diagnosis, incidence, treatment [Youmans] *36 *38
  deprivation in man experiments on 1581
  hypervitaminosis [Wyatt & others] *304
  requirement exposure to cold, [Ershoff] 79—*ab*
  treatment of tinnitus aurium 1225
  hypervitaminosis effect on fetal mouse bones *London* 776
VITAMIN B COMPLEX See also Acid *p* aminobenzoic Acid folic
  deficiencies effect on selection *of food components* [Scott] 871—ab
  B_1 See Acid *nicotinic*
  B_2 See Riboflavin
  B_6 See Pyridoxine
  B_{12} *injected* for polyneuritis [Menof] 1521—ab
  B_{12} nature of intrinsic factor of Castle [*Hall*] 1214—ab
  B_1 reactions to [Arkless] 1586—C
  B_1 *treatment* of neuropathy in pernicious *anemia* [*Fuld*] 796—*ab*
  B_1 treatment of parkinsonism 1601
  B_{12} *treatment* of pernicious anemia [Vilter] 954—ab [Beard] 1032—ab [Schrumpf] 1039—ab
  B_{12} treatment of seborrheic dermatitis, [Andrews] 1126—ab
  B_1 U.S.P., solution crystalline, N.N.R. (*Organon*), 627
VITAMINS C See also Acid, ascorbic
  cataracts caused by? 1420
  deficiencies [Youmans] *388
  deficiency in tropics [*Stransky*] *1129—ab*
VITAMINS D See also Rickets
  deficiency [Youmans] *39
  hypervitaminosis D [Youmans] *44
  intoxication *in* child with rheumatoid arthritis [Hyde] 1202—ab
  treatment of rickets, [Youmans] *43
  treatment optimum dose in pregnant women and newborn, Paris 1019
  D as adjuvant to sulfones in *tuberculoid* leprosy [Herrera] 276—ab
VITAMINS E
  alpha tocopherol (epsilan) *treatment of* venous thrombosis [Ochsner & others] *831
  blood sugar and [*Levens*] 1312—ab
  deficiency [Youmans] *45
  effect on weight gain in nurslings [Schmidt] 317—*ab*
VITAMINS K
  deficiency diagnosis, incidence treatment [Youmans] *44
VIVISECTION See Animal Experimentation
VOCABULARY See Terminology
VOCATIONAL REHABILITATION See Rehabilitation
VOICE See also Speaking, Speech
  vocal training 1223
VOMITING See also Motion Sickness
  caused by aureomycin milk to control [Bartholomew] 495—ab
  in infantile diarrhea aureomycin for, [*Magnusson*] *499—ab*
  in Pregnancy See Pregnancy
  of Blood See Hematemesis
  postanesthesia, dimenhydrinate for, [Rudolph] 1283—C
  prolonged potassium treatment [Nadler] 119—ab
VOTING
  A.M.A. resolution on absentee ballot 1480
  recent elections and physicians) *as* citizens, 1007—E 1009
  register for 318—E
VULVA
  Pruritus See Pruritus vulvae
VULVOVAGINITIS
  nongonorrheal [Weaver] 1026—ab

W

W.H.O. See World Health Organization
WAGES See Income
  Tax on See Tax *income*
WAKELEY, Sir CECIL trend in modern surgery 1391
WALTON (IZAAK) Award See Prizes
WAR See also Korean War Medical Preparedness Military Medicine World War *II*
  Casualties See Korean War
  chemical warfare medical *problems* in [Wood] *606
  Heroes See Korean War, Heroes, World War II Heroes
  medical problems encountered in undersea craft [Pugh] *230
  memorial sculptured statuary British Medical Association 62
  Veterans See Veterans
WARREN, EARL California's governor and socialized medicine [Askey] 200—C [*Koontz*] *860—C*
WARTS See Verruca

TUBERCULOSIS OF LUNG (pulmonary tuberculosis). See also Bronchus tuberculosis
  artificial pneumothorax in, physiologic and anatomic effect, 212
  bilateralization in, [Colantuono] 718—ab
  bronchoscopy in, 1262—E
  Case Finding. See Tuberculosis
  Cavities: See also Tuberculosis of Lung treatment
  cavities, blockage of sympathetic in, [Witte] 1315—ab
  complications endobronchial tuberculosis, [Menen ez] 492—ab
  complications: tuberculosis of spleen in [Rodriguez Castells] 1595—ab
  complications: virus pneumonia, [Reimann] *81
  miliary, radiological and pathological aspects, [Emergy] 1519—ab
  round tuberculous pulmonary lesions (tuberculomas), [Mahon] 267—ab
  smoking contraindicated for patients with 437
  surgical treatment, cavernostomy for residual cavity, [Murphy] 1125—ab
  surgical treatment, temporary phrenic paralysis, [Michaelis] 348—ab
  surgical treatment, upper partial thoracoplasty [Zerbini] 1132—ab
  treatment, chemotherapeutics injected into pulmonary cavities, [Ebers] 1216—ab
  treatment, para-aminosalicylic acid, [Dooneief] 344—ab
  treatment, streptomycin, [Sangiovanni] 964—ab
  treatment, streptomycin aerosol, [Miller] 951—ab, 1031—ab
  treatment streptomycin, intermittent dosage [Bignall] 346—ab
  treatment, sunlight have beneficial effect in quiescent type? 887
  treatment, thiosemicarbazone, [Klee] 127—ab
  treatment, ultraviolet rays, hazard, 1419
TUBING See Tube
TUBOCURARINE
  chloride, evaluation, [Unna & others] *448
"TUFTING" of terminal phalanges, 886
TUFTS Lecture: See Lectures
TUITION Fees See Basic Science; Schools Medical
TULAREMIA
  diagnosis and treatment, [Taylor] 490—ab
  prophylaxis with vaccination, 1468—E
  rural water supply source of, [Jellison] 1517—ab
  treatment, streptomycin, in childhood, [Levy] 1126—ab
TUMORS See also under names of specific organs and types of tumors
  Alveolar Cell See Lungs, tumors
  Malignant See Cancer, Sarcoma
  Polypous See Polyps
  Chromaffin Cell See Pheochromocytoma
  etiology, Beta rays [Stilllans] *743
  McIntire Clinic, Virginia, 191
  radioiodine plus methylthiouracil and acetyl aminofluorene induce [Doniach] 1519—ab
  treatment, rotation radiotherapy, 197
  Wilms See Kidneys, tumors •
TURKEY
  census, 1950, 1498
  Microbiology Congress (4th), 1392
  National Medical Congress (11th), 1
TURNER'S SYNDROME, 2 sisters wit
TWINS
  erythroblastosis fetalis affecting Fadden] 712—ab
  of different size, 360
  uniovular, congenital syphilis in [Gahrmann] 500—ab
TYPHOID See also Paratyphoid
  carriers treatment antagonistic b penicillin, sulfonamides, [Vaichuli —ab
  diagnosis, differentiating from vir moma, [Reimann] *81
  treatment *p*-aminosalicylic acid and its dium salt, Italy, 1498
  treatment, chloramphenicol, [Mollaret] 1133—ab, [Sedellian] 1215—ab, [Gabinus] 1523—ab
  treatment, chloramphenicol, dosage, [Medina] 499—ab
  treatment, chloramphenicol relapses after [Laporte] 1595—ab
TYPHUS
  immunity, does produce life-long immunity? [von Bormann] 1130—ab
  immunization, vaccinal nephritis, [Porge] 275—ab
  treatment, aureomycin, of tick typhus [MacCallum] 586—ab
  treatment, chloramphenicol, [Benhamou] 275—ab
  treatment paraaminobenzoic acid in, [Chung] 798—ab

U

UN See United Nations
 See United Nations
  NDAG, EKREM HAYRI minister of ealth, Turkey, 1392
ULCERS See also Colitis, ulcerative, Peptic Ulcer, specific organs and regions as Mouth, Throat
  crural, pedicled flaps for, [Brummelkamp] 429—ab
  Tropical: See Leishmaniasis
  Varicose: See Varicose Veins
ULTRASOUND See Sound waves
ULTRAVIOLET RAYS
  irradiated plasma, viral hepatitis transmitted by, [Rosenthal & others] *224; [Barnett & others] *226; [James & others] *228; 241—E, [Lipman] *1090
  irradiation of plasma, 511
  lamps, minimal requirements for acceptance (Council report), 625
  sterilization of water in hydrotherapeut tank, [Jern] 1206—ab
  treatment hazard in pulmonary tubercul 1419
UMBILICUS
  Hernia See Hernia, umbilical
UNCONSCIOUSNESS: See also Com reference), Sleep
  dissecting aneurysm of aorta with & Sayre] *1141
UNDERGRADUATE Work; Student Education; Education, Medic Medical; Students; Studen University
UNDERNUTRITION: See Nutrit
UNDERSEA CRAFT: See Subm
UNDERTAKERS See also Med at end of letter M
  homologous serum jaundic ing, [Runyan & others
  sensitivity to embalming
UNDULANT FEVER Se
UNIONS See Industrial
UNITARIAN SERVICE mission (to Germa
UNITED CEREBRAL Inc's Research (
UNITED MINE WO
  medical director
UNITED NATION
  UNESCO autl tional proje
  World Health Organizati
UNITED ST eral; N
  Air Force Force
  Armed
  Army
  Atom Er
  Car
  C

  Pe live
  Public
  tax court, policy, 17—
  Veterans Admini ministration
UMBILICUS
  Hernia See Hernia um
UNIVERSITY See also Edu Schools, Medical, under nan universities
  Faculty See Schools, Medical
  Hadassah Hospital Medical Sch 1281
  new academic year celebrated in C 1-2, Norway, 705
  of British Columbia (new medica opens), 1195
  of Cauca, (new faculty of medicine bia, 1282
  of Chicago (homologous serum jau clinics), [Allen & others] *1070
UNIVERSI
  of Colo mem
  of C or
  of I
  l
  (

WASHINGTON
  Office See American Medical Association
  University of See University
WATER See also Baths, Swimming
  chloride balance, bedside management, [Scribner & others] *1167
  dehydration from deficit of, [Scribner & others] *1172
  laboratory, (mobile) Ky , 1385
  Lake Michigan pollution suit ending, Illinois, 1102
  losses in infantile diarrhea, [Hoffman] *1160
  Metabolism See also Dehydration
  metabolism, concentrated human serum albumin in nephrosis, [Luetscher] 790—ab
  metabolism, effect of ACTH and cortisone, [Sprague & others] *1344
  nitrates in well water cause deaths of babies Minn , 1577
  pollution, survey of Arkansas River Basin Colorado, 1191
  retention after cortisone therapy [Chapman & Kark], 65—C
  retention (postoperative) and adrenal cortex, [Hardy] 1403—ab
  softeners detrimental to patients with hypertension, 726
  sterilization in hydrotherapeutic tank by ultraviolet rays [Jern] 1206—ab
  supply (rural), tularemia from [Jellison] 1517—ab
  swimming hole and poliomyelitis, 1224
  wet clothes and coverings, to protect against heat from fire, [Buettner] *737
WAUGH Rudick Test See Heparin tolerance
WAYNE UNIVERSITY
  blood-typing program of students and faculty, 1385
WEARING Apparel See Clothing
WEATHER See Seasons
WEBER-Christian disease See Panniculitis
WEIGHT See Body weight, Infants New born, weight Obesity under specific organs as Adrenals, Brain
WELCH, WILLIAM H , atmosphere in which Dr Welch was popsy, 364—ab
WELFARE See also Children, Social Welfare
  agencies, directory of, Calif , 1576
WELL Water See Water
WELLCOME Medal See Prizes
WERLHOF'S Disease See Purpura thrombopenic
WEST VIRGINIA Citizen's Health Planning Committee, 940
  University establishes 4 year medical school 1492
WESTERN SURGICAL ASSOCIATION Sir Heneage Ogilvie statement before Granny racket, [Koontz] 261—C
WESTINGHOUSE Infra-Red Heat Lamps, R-40, 762
WETTING AGENTS
  in aerosols, pulmonary toxicity of, [Hall] 1202—ab
WHEAT See Bread
WHIRLPOOL Aerator, 1093
WHITAKER and Baxter See American Medical Association, National Education Program
WHITE HOUSE CONFERENCE
  Midcentury, also history of Conferences since 1909, 1096—E, 1380—E, 1467—E
"WHITE PAPER" See National Health Service, England
WHITNEY Foundation See Foundations
WHOOPING COUGH
  immunization followed by convulsions and hemiplegia, [Grace] 1121—ab
  immunization, followed by poliomyelitis, 240—E, [Leake] 259—C, [Hill, MacCallum] 585—ab · [Banks] 959—ab
  in infancy, [Byers] 422—ab
  incidence, 1104
  toxoids precipitated with aluminum phosphate, [McComb] 1516—ab
  treatment, ascorbic acid in, [DeWit] 879—ab
  treatment, aureomycin, [Miller] 1405—ab
  treatment, aureomycin and chloramphenicol [Barbera] 1131—ab
  treatment, human hyperimmune serum, [Johnson] 501—ab, [Willemijns] 797—ab
  treatment, human hyperimmune serum and streptomycin, [Hatz] 1409—ab
  vaccine, Turkey, 1498
  vaccine combined with diphtheria and tetanus toxoids, N N R , (Cutter) 239
WILLS
  for physicians, [Waugh] *842
WILMS' Tumor See Kidneys tumors
WILSON, CHARLES MORROW, ONE HALF THE PEOPLE DOCTORS AND CRISIS OF WORLD HEALTH, 334—C
WINTER
  angina in 1323
WINTERNITZ, MILTON C , honored by Yale Journal of Biology and Medicine, 251
WINTERSTEIN, HANS, retirement, [Terzioglu] 782—C
WIRELESS See Radio Television
WOMAN S AUXILIARY
  resolution adopted by, 188—OS
WOMEN See Marriage, Maternity , Menstruation, Menopause, Pregnancy
  in Medicine See Nurses and Nursing, Physicians women, Students, Medical, women
WOOL
  Q fever in processing plant, [Sigel] 263—ab
WORDS AND PHRASES See Terminology Medicolegal Abstracts at end of letter M
WORK See Exercise, Industrial Health
  Therapeutic Use of See Occupational Therapy
WORKMEN S COMPENSATION See also Industrial Accidents
  Council report, 649
  in partial loss of vision 1419
  medical aspects New York, 1192
  state laws on (Bureau report), 866
WORLD CONGRESS of Cardiology, 699
WORLD HEALTH ASSEMBLY, [McCormick] *451
WORLD HEALTH ORGANIZATION
  Central Anti-Tuberculosis Institute in Istanbul, Turkey, 1499
  Deputy Director General Dr Pierre Dorolle, 251
  fellowships for study abroad, 322
  health officers sent to Korea, 559
  international meetings on syphilis, 332
WORLD HEALTH ORGANIZATION—Continued
  maternal and child health center in India 1195
  Mecca pilgrimage free of epidemics, Arabia 1195
  project in Iraq, 403
  regional office for Africa, 1016
  smallpox eradication campaigns Latin America, 58
  standards for 16 biologic products 1387
  venereal disease control, 556
  Western Pacific organization, 405
  World Health Assembly (3rd), [McCormick] *451
WORLD LEAGUE See United Nations
WORLD MEDICAL ASSOCIATION
  4th General Assembly, Oct 16-20, 1950 New York City, 316—E, 551—E, 930—E (report of meeting) 1010—OS
  5th General Assembly, Sept 15 20, 1951 Stockholm, 930—E
WORLD WAR II (1939-1945)
  dental caries and nutrition during and after [Alexander] 347—ab
  postwar Germany, endemic hepatitis in American troops in, [Paul] 797—ab
  postwar refugee population of 30 000, 1391
  Veterans, See Veterans
WORLD WAR II HEROES
  Arnold (John S), Silver Star Medal, 189
WORLD WIDE
  pictures unauthorized use by Democrats 930—E
WOUNDED See Korean War
  Transport of See Ambulances
WOUNDS See also Accidents, Burns, Trauma, under names of specific organs
  healing and ACTH, 47—E
  state laws on (Bureau report), 863, 865
  War See Korean War
WRINGER injury, [Hausmann] 794—ab
WRIST
  fractures of carpus, [Andersen] 1040—ab
WRITING See Books, Book Notices at end of letter B, Journals Literature Newspapers
  Letters See Letters
  Prescriptions See Prescriptions

X

XYHL resin, toxicity, 211
ndrome, [Tou- 378—ab
X-RAYS See Roentgen Rays

Y

YALE Journal of Biology and Medicine See Journals
YEASTS
  in gastrointestinal tract, treatment, 211
YOUTH See Adolescence

Z

ZINC
  industrial hazard, 1223
ZOSTER See Herpes zoster

INDEX TO PAGES

OF THE JOURNAL, ACCORDING TO WEEKLY ISSUES—VOLUME 144, SEPTEMBER-DECEMBER, 1950

Pages	No	Date
1— 80	1	Sept 2
81— 212	2	Sept 9
213— 286	3	Sept 16
287— 360	4	Sept 23
361— 438	5	Sept 30
439— 512	6	Oct 7
513— 598	7	Oct 14
599— 726	8	Oct 21
727— 812	9	Oct 28
813— 888	10	Nov 4
889— 976	11	Nov 11
977—1048	12	Nov 18
1049—1140	13	Nov 25
1141—1226	14	Dec 2
1227—1326	15	Dec 9
1327—1420	16	Dec 16
1421—1536	17	Dec 23
1537—1664	18	Dec 30

AUTHOR INDEX

In this Index are the names of the authors of articles which have appeared in The Jou … names of those who have read papers before Societies as published in The Journal and those whose articles have … tracted in the Current Medical Literature Department. The * preceding the page reference indicates that the article ap… full in The Journal

For subject index see page 1605

A

Aarstrand, T, 879
Abelson, D, 716
Abrahamson, L, 72
Abrahamson, M L, 72
Abrams, H K, *107, 1028
Abramson, H A, 951, 1031
Abramson, P D, 491
Acuff, H, 493
Ada, A E W, 713
Adair, C, *1540
Adams, J E, 1120
Adams R D, 1306
Adlersberg, D, *909
Adson, A W, 711
Aigner, E, 966
Aitken, J, 1310
Albahary, C, 1040
Albright, E C, 954
Alessandrini, P., 587
Alexander, E, 347
d'Allaines, F, 965
Allegre, G, 798
Allen, F. M, 64
Allen, J G, *1069
Alrich E M, 497
Altamirano Orrego, M, 964
Altman, I, *835
Altschul, S, 710
Alves Lima, M, 1132
Amedeo, M, 1314
Amerio, A, 718
Amromin, G D, 310
Andersen, K, 1040
Anderson, J R, 68
Andersson, B, 272
Andrews, F. N, 793
Andrews, G A, 583
Andrews, G C, 1126
Anglesio, D, 1312
Anslinger, H J, 333
Aquilina, S, 1591
Arai, H S, 343
Arana Iniguez, R, 427
Archer, B H, 782
Arjona, E, 347
Arkless H A, 1586
Armbrust, C A, Jr, 1202
Armstrong, B E, 419
Armstrong, C, *609
Armstrong, T G, 586
Arneson, A M, 67
Arnold, A, 874
Arnold, R C, 1210
Arnold, W T, *903
Aronson, S, 494
Asboe-Hansen, G, 1133
Asbury, C E, Jr, 1205
Ashkenazy, M, *1424
Askey, E V, 200
Askey, J M, *97
Astaldi, G, 501
Astrup, P., 1133
Atlas, D H, *1246
Austen, G, Jr, 581
Austin, E, 417
Axelrod, A R, 263
Ayer, J. P, *1058
Azambuja, N, 427

B

Babineau, L M, 1590
Bachrach, L, 714
Badger, G F., 268
Badin, J, 277
Baehr, G, 485, 1588
Baffi, V, 1131
Baggenstoss, A H, 264, 1118, 1305
Bailey, C P, *1049
Baker, C, 425, *617
Baker, D V, Jr, 494
Baker, L A, 1205
Baker, M, *997
Baker, R W R, 498
Balch, H H, 342
Ball, W P, 1305
Bang, H O, 74
Banks, H S, 959
Barbe, A, 276
Barber, T E, *519
Barbera, L, 1131
Barcroft, H, 499
Bargen, J A, 1305
Barnes, M E, 712
Barnett, R N, *226
Baron, E, 1309
Baronofsky, I D, 421
Bair, J S, *813
Barreau, A, 963
Barrow, J G, 873
Bartels, E C, 488
Bartholomew, L G 495
Bartlett, R W, 270
Baskin, J L, 575
Basom, W C, 1213
Bass, H E, 412, *819
Bassen, F A, *221
Bassett, A A, *823
Bastrup-Madsen, P, 960
Bates, R R, 1120
Bauer, G, 959
Bauer, K H, 961
Bauman, E, 715
Bayer, O, 798
Bayles, T B, *537
Bazan, F, 878
Beale, A J, 959
Beard, M F, 1032
Beau, P, 350
Beaven, P W, *306
Bechgaard, P, 74, 876, 877
Beck, C S, 1403
Beck, W C, *162
Becker, S. F, 789
Becker, W H, 275
Beckmann, P, 428
Beebe, R T, *1065
Beeler, T T, Jr, 492
Beeman, E A, *609
Begtrup, H, 963
Behrman, H T, *218 *995
Beidleman, B, *925
Beling, C A, 496
Bell, G I, 954
Bell, G O, *1243
Bell, R E, 954
Bell, W R, 337
Bellet, S, 419
di Bello, R, 427
Belnap, W. D, 1403
Benda, R, 1039
Bender, S, 71
Benhamou, E, 275
Benioff, M A, *1
Bennett, R L, *377
Benson, R C, 955
Benton, J G, *1443
Bercovitz Z T, 1211, 1590
Berg, R Jr, 1514
Berger, J S, 415
Bergsma, D, 799
Berkson, J, 265
Berman, L, 263
Bernard, R, 965
Bernasconi, P, 587
Bernhard, W, 1305
Berry, N E, 1209
Bertrand, I, 980
Berwind, T, 348
Best, M M, 1512
Bethe, J G F, 1312
Betourne, C 1595
Bichel, J, 1215
Bickford, R G, *1081
Bie, J, 351
Bigger, J W, 716, 1521
Bignall, J R, 346
Bill, A H, Jr, 268
Billing, B H, 877
Binet, J P, 502
Birsner, J W, 1515
Bishop, L, *757
Bjørnstad, R T, 1130
Blake, E M, 1118
Blakemore, A H, 203
Bland, W H, 1517
Bliss, E A, 586, 1207
Block, M, 413, 415
Blondet, P, 348
Bloomfield, A L, *287
Bloomfield, S, 417
Bloss, J R, *1358
Bluemle, L W, Jr, 1203
Blumberger, K, 798
Blumencron, W, 1216
Boden, E, 427
Boffi, L L, 964
Bogdasarian, R M, *1369
Boger, W P, 786
Bokkenheuser, V, 503
Boland, E W, *365
Boles, R S, *361
Bolt, W, 501
Boreau, T, 588
Borkenstein, E, 1216
von Bormann, F, 1130
Bornstein, J, 584, 584
Bornstein, S, *754
Bortz, D W, 576
Boscardi F, 1594
Bosch D T, 497
Bouchard, J, 1517
Bourdillon, R B, 1128
Bourmer, H R, 799
Bousquet, G, 126
Boutwell, J H, 1401
Bowers, R E, 498
Boyd, L J, 345
Boyer, N. H, 714
Bracher, G, 502
Bradess, V A, 1402
Bradfield, J. Y, 578
Bradley, R F, *114
Bradshaw, H H, 206
Brandle, R, 1522
Braeucker, P. W, 799
Brahdy, L, 783
Brainerd, H D, 1304
Brancato, G J., 575
Brandt, E L, 571
Branwood, A W, 71
Brauch, F., 589
Brea, M M, 718
Breck, L W, 1213
Breckler, I A, *1091
Brendler, H, 1207
Brendler, S, *1353
Brewer, T F, 310
Brill, W. D, 1511
Broadbent, T R, 123
Brock, J, 1312
Brod, R C, 425
Broden B, 1215
Brooks F, 1206
Brosnan, J T, 578
Brougham, M, 1306
Brown, E B *1084
Brown, H, *1143
Brown, H A, 65
Brown, J, 1211
Brüggemann, W, 587
Bruins, C, 491
Bruins Slot, W, J, 74
Brummelkamp, R, 429
Bruner, H D, 583
Brunhofer, A, 266
Brunner, M J, 1283
Bryson, V, 1591
Buchberg, A, 314
Bucher, R, 880
Buck, G, 1028
Buckstein, J, *1154
Buehrig, M R, 1034
Bulow, K, 351
Buettner, K, *732
Bunn, P, *1540
Burchell, H B, 580
Burford, T H, 1514
Burger, H, 1131
Burgess, J R, Jr, 205
Burckhardt, C, 1409
Burkland, C E, 794
Burlingame, C C, *1365
Buschke, F, 497
Butler, A M, 1406
Butsch, W L, 1591
Buttaro C A, 502
Butterworth, C E, Jr, 1404
Button, R, *1259
Bydal, A, 800
Byers, R K, 422
Byrne, J J, *823
Bywaters, E G L, 271

C

Cachera R, 1315, 1523
Cairns, H, *92
Caldwell, E R, *1540
Calkins E, 578
Callebaut, C, 717
Calvy, G L, 496
Camelin, A, 1039
Campbell, A, 1592
Campbell, A M G, 584
Campbell, E H, 1589
Campbell, M, 425
Canfield, N, 1205
Cantor, M O, 957
Carabello, C A, *304
Cardenas, C, 420
Cardy, J D, *1179
Carey, R A, *1347
Carithers H A 344
Carr, D T, 65
Carrodus, A L 125
Carter, A C, *1549
Carter, B, 1516
de Carvalho Lima D P, 1524
de Carvalho, O, 71
Casas, C B, *379
Casebolt, M B, *599
Cateigne, G, 502
Castellanos, A, 272, 1026
Castex, M R, 963
Catlin, D, 1307
Cattell, M, *889, 1025
Cattell, R B, 188
Cavallaro, A L, 1588
Cazort, R J, *118
Ceelen, W, 880
Celentano, R, 1588
Centrangolo, A 350, 1595
Ceroni, R, 878
Chandler, C A, 1207
Chang, H, 712
Chang, N C, 798
Chapman, R A, 65
Chase, W E, 1207
Chatas, A, 587
Cherry, C B, *97
Chesner, C, 577
Chesson, A L, 1517
Chester, A, *990
Chiaverini, R, 502
Choukroun, J, 277
Chriss, J W, 270
Christain R M, 418
Chung, H L, 798
Chung-Hoon, E K 341
Ciliberti B J, *382
Cilley J H, 1404
De Cillo, D M, 1040
Clagett O T, 267, 576, 1124
Clancy, E J, *844
Clark E B 1125
Clark, O, *749
Clegg, J W, 346
Clemmesen, C, 351
Clifford, W J, 794
Cline G M, 1208
Coe W S 1512
Coen, W B, 422
Cohn, R, 1213
Colantuono, P, 718
Cole R M *609
Colfer F A, 1511
Collier, H O J, 1035
Colsky J *1558
Colwell A R 871
Comfort M W, 1118
Commons R R, *1259
Conger, G B 580
Conn, J W 1511
Conradi G, 1312
Cook E N, *1421
Cook J R, 583
Cook, W R, 1309
Cooper, F W, Jr, 424
Cooperman H O, 578
Cope, O, 953
Coquoin-Carnot (Mrs) 277
Costa Bertani, G, 429
Costa Pinto, A, 1040
Cottet, J, 1132
Cotton, B H, 1515
Cotzias, G, 1513
Coulter, W W, Jr, 1033
Covalt, N K, *1249
Crabtree, N, 1310
Crassweller, P O, 959
Creech, O, *1227
Crile, G, Jr, 582 1033, 1518
Crofton, J W, 346
Crosby, W H, 1404
Crosson, J W, 786
Crow, J B, 1517
Crowley, L G, 424
Crumpler, H R, 1035
Crymble, M, 580
Cucchiani Acevedo, R, 350
Cumming, J G, 1210
Curnen, E C, 787
Currence, J D, 1206
Cuyler, W K, 1516

D

Dacie, J V, 585
Dack, S, 491, 574
Daff M E, 1519
Dahl, L K, 1513
Dahl Iversen E, 588
Dameshek, W., *1372, 1404
Dammert, K, 1311
Dang-Van-Chung 718
Dargent, M, 798
Dark E A, 271
Daugherty, G W, 264
Dauis Lawas, D F, 1129
Dausset, J, 1524
Davies, R R., 345
Davies-Jones, E, 1128
Davis, L, *1421
Davis, T. J, 1303
Dean, R F A, 272
Dearing, W H 1590
DeBakey, M E, *831, *1227
Debray, J R, 801
Debray, P, 965
Debre, R, 718
DeCamp, J T, 204
DeCamp, P T, *841
Deibert, A V, 64
Deisher, J B, Jr, 1213
Dekking F., 1038
DeLay, P D, 1123
Demaree, E W., 497
Denker, P G, *5
Denman, F. R, 206
Denolin H, 717
Denst, J, 1302
Dent C E 1035
DeOme, K B, 1123
Derow H A, 1516
Destaing F, 275
Deterling R A Jr 1030
DeWind L T *299
Dexter L, 68
Diaz-Rivera, R S 273 273
Dickinson, F G, *1395
Dickler, D J, *382
Dienst, R B, 493
Dietrich H F *1175
Dineen, J, 1403
Di Palma, S, 337
Dixon A St J, 271
Dobson, L, 1034
Docherty, M B 269, 869 1210
Dodds G A, *439
Dole, V P, 1513
Dolman C E, 712
Domonkos A N 1126
Donlach, I, 1519
Donzelot, E, 962 965
Dooneief, A S, 344
Dorner, G, 273
Dossena, P, 1315
Dotter, C T, 1026
Dotti, L M, 964
Dow, J W, 68
Dowling, H, *1540
Doyle, J B, 957
Doyle, L P, 793
Drachman S R, *909
Dragsted, P J, 1316
Dragstedt, L R, 1206
Drescher, H 1131
Dreskin, E A, 1588
Dresner, E, 585
Dreyer R 501
DuBois, K *105
Dubois de Montreynaud, J -M 879
Ducuing, J 276
Dudgeon, J A, 1128
Duncan, G G, 1501
Dundon C C 416
Dunn, R E 1520
Durand L 1314

E

Eagle, H, 1509
Eagle H R, 1304
Earlam, M S S, 425
Eberhard, R, 1216
Eberle, J, 1133
Ebers, N, 1216
Edlund Y, 1594
Edwards D A W 1593
Edwards, H C, 71
Effert, S, 798
Effron A S, *5
Ehrlich, L, 264, *1246
Eichler, O, 1038
Eicholz, L, 1038
Eidlow, S, 1211
Eisele, C W, *621
Ettinger, L, 208
Eklund L, 961

Elghammer, R M, *1069
Eliasch, H, 1039
Ehel, L P, *1349
Elsdon-Dew, R, 586
Emam Zade, A M, 962
Emerson, E B, Jr, *613
Emery, F J, 714
Emery, J L, 1519
Emmett, J L, 121
Enerson, D M, *1069
Engel, A, 1408
Engle, M A, 491
Enjalbert, A, 276
Epler, D C, 1517
Epstein, F H, 1123
Epstein, F W, 792
Erfan, M, 877
Erickson, P T, *985, 1127
Ericsson, N O, 501
Erman, E D, 714
Ershoff, B H, 793
Ervin, D M, 418
Esch, P, 348
degli Esposti, A, 274
Estival, J, 350
von Euler, U S, 1108
Evans, J A, 1303, *1132
Evans, J B, 489
Evans, P R, 272
Evans, R J, 877
Everett, H H, 791
Ewalt, J R, 1209
Exbrayat, C, 71, 1215, 1215
Eyquem, A, 502, 965

F

Fainer, D C, *1455
Fajers, C M, 1311
Falcone, J, *213
Falconer, M A, 207
Fallon, J, 578
Farber, S M, *1
Farmer, A W, 959
Farmer, D A, 1027
Farquhar, J D, 709, 120
Fasal, P, *759
Fasanella, R M, 1118
Fasciolo, J C, 1131
Faulconer, A, Jr, *1081
Favour, C B, 714
Feldman, A, *213
Feldmann, H, 351
Feller, A E, 268
Felsen, J, 67
Felter, J W, 1023
Ferey, D, 800
Ferlozi, D, 341
Fernandez Luna, D, 1131
Ferner, H, 1131
Feroldi, J, 1038
Ficarra, B J, *616
Field, L E, 571
Fields, T, *1421
Fill, L, 1120
Finch, C A, 112
Finch, S, 1123
Findlay, G M, 310
Finkler, R S, 789
Fisch, C, 315
Fischer, E, 347
Fishbein, W I, 1208
Fisher, A M, 490
Fishman, W H, *892
Fitz-Hugh, T, Jr, 491
Fleischmann, R, 1509
Fleming, T C, 580
Flesch, P, 1110
Fletcher, G B, 201
Fletcher, M E, *301
Fog, M, 966
Fono, R, 878
Fontaine, R, 801
Forsee, J H, 267
Forssberg, A, 961
Foscarini, M, 718
Fowler, E P, 1515
Fowler, E P, Jr, 1515
Fox, R A, *226
Fox, T A, 1598
France, N J, 715
Franchini, A, 798
Frank, G, 500
[illegible], P, 801
Frankel, J J, 1205
Franks, W R, 959
Fraser, H F, 1124
Freed, S C, 570
Freedberg, A S, *10
Freeman, R, *914
Freis, E D, 1023
Freud, P, 266
Freundlich, M, *88
Frey, J, 1593
Frey, S, 1130
Friedberg, C K, *527, 1025
Frisell, E, 499
Fritel, D, 1595
schlin, W, 1522
J W, 491
F, 430
J, 796
, H, 1314
r, M L, 582
er, R, 1312

G

Gaberman, P, *1246
Gabinus, O, 1523
Gabrilove, J L, 342
Gaede, K, 1131
Gaetno, M, 1523
Gaggini, L, 427
Gahlmann, D, 500
Gaillard, L, 1215
Gallison, D T, Jr, 791
Galluzzi, N J, *1069
Galton, D A G, 581
Galy, P, 74
Gamble, C J, *293, 783
Garate, J, 331
Garcia, O, 272, 1026
Garcia Lopez, G, 269, 1036
Garcia Sanz, M, *379
Gargill, S L, *16
Garland, L H, *997
Garn, S M, 789
Garrison, P L, *293
Gazes, P C, 419
Gemmill, J S, 207
Geppert, L J, 713
Gerbrandy, J, 1108
Gerrard, J, 1310
Gerrie, J, 579
Gershon-Cohen, J, 918
Gertler, M M, 789
Gibbon, J H, Jr, 1033
Gibson, C D, 1509
Gibson, S, *8
Gilardon, A, 718
Gilbert-Dreyfus, 130
Gill, B F, 1122
Gilliland, R M, 1209
Gimbel, N S, *979
Ginsberg, V, 1308
Giraud, P, 965
Girdwood, W, 1129
Gittler, R D, *237
Givan, T B, *213
Glanzmann, E, 1131
Glaser, G H, *996
Glenn, H R, 956
Glover, R P, *1049
Glynn, L E, 715
Gnirrep, W F, 799
Goble, F C, 871
Godard, 800
Godfrey-Horan, M E, 311
Goes, J S, Jr, 878
Goffman, J W, 789
Gold, H, 1025
Goldberg, S Z, 1119
Goldblatt, H, 709
Goldenberg, P T, 1126
Goldinger, J M, *621
Goldman, J, 1023
Goldman, L, 1407
Goldstein, L Z, 200
Goldstone, S B, 1110
Golseth, J G, 417
Goluboff de Milles, R, 961
Gonin, A, 74
Gonzalez, W F, 262
Good, C A, 576, 1121
Good, R A, 499
Goodman, H L, 263
Goodman, J J, *218
Goodwin, L D, 417
Goodwin, W E, *384, 794
Goodyer, A V N, 1123
Gordon, A S, *1447, *1155
Gordon, A T, *12
Gordon, H M, 115
Gorlin, R, 714
Govan, A D T, 346
Grace, E J, 1591
Grace, H B, 1121
Graft, U, 878
Graham, A J P, 959
Graham, B D, 792
Graham, C M, *1179
Graham, W, 1121, *1239
Grahn, H V, 1303
Grasset, E, 1315
Graubard, D J, *213
Graves, L M, 1589
Greaney, E M, 270
Grebe, A A, 1203
Green, D M, *139
Green, T W, *237, *380
Greenblatt, R B, 193
Greenhill, J P, 338
Greenspan, E M, *1558
Greenspan, H S, *100
Greiner, T, 1025
Griffin, A C, 571
Griffith, F R, 576
Grimson, K S, 1211
Grob, D, *105
Groen, J, 349
Gros, H, 273
Grossman, B J, *1069
Groulade, J, 1132
Grünberger, V, 719
Gudmundsson, K R, 1508
Günther, E, 348
Guilhem, P, 276
Guillaume, J, 800
Guinet, P, 73, 798
Gutch, C F, 1030
Gutman, A B, 786
Guttmacher, M S, 1586
Guyton, A C, 339
Guyton, R A, 1302
Gyorgy, P, 709

H

Habbu, M K, 1214
Habif, D V, *996, 1108
Hadders, H N, 1038
Haeger, R R, 1034
Haehner, E, 962
Haenel, U, 128
Haublein, H G, 503
Hagn-Meincke, F, 420
Haimovici, H, 417, *151
Haizmann, R, 1522
Hall, A D, 790
Hall, B E, 1211
Hall, G C, Jr, 1202
Hall, G E, *1256
Hall, R H, 489
Haller, H L, *104
Halpern, B N, 879, 880
Hamblin, D O, *107
Hamilton, C, 1283
Hamilton, J D, 1209
Hammer, H J, 1207
Hanahan, P W, 337
Hand, J R, 956
Hannoun, C, 502
Hanon, F, 277
Hansen, J L, 589
Hansted, C, 351
Hantschmann, L, 799
Harbert, F, 1309
Hardt, L L, 571
Hardy, J D, 1403
Hare, C C, *996
Hare, H F, 417
Harris, M C, 69
Harris, R, 262
Harris, T H, 875
Harsha, W N, 956
Harsløt, E, 503
Hart, G M, 790
Hart, P D'A, 1108
Hartmann, H, 1593
Hartmann, W D, 74
Hartzell, A, *108
Harvey, A M, *1317
Harvey, H D, 339
Hasbun, J, 1210
Hasche-Klünder, R, 962
Haserick, J R, 576
Haskins, D, 1123
Hastings, L P, 1126
Hatz, F, 1409
Haunz, E A, *1179
Hausmann, P F, 791
Havens, W P, Jr, 577
Hawley, P R, 1121
Hayne, R A, 581
Headley, N E, *365
Healey, R F, 68
Heath, P, 953, *1118
Heckel, G P, 422
Hedgcock, G H, 311
Hedinger, C, 430
Hellman, F R, 1590
Hellmeyer, L, 427, 428, 1593
Helm de Balsac, R, 962, 965
Heinle, R W, 1302
Heinsius, E, 1521
Heinzel, J, 1038
Hejtmancik, M R, 578
Helbo, S, 966
Heller, P, 338
Helpern, G, 65
Hench, P S, *1327
Henderson, F, 118
Henderson, E L, *317, *553, *767, *933, *1186, *1268, *1570
Henderson, R R, 580
Henle, W, 263
Hensel, G, 1315
Herbolsheimer, H, *512
Herdan, G, 584
Hernandez Morales, F, *379
Herrell, W F, *519
Herrera, G, 276
Herrmann, G R, 270
Hess, F, *601
Heusner, A P, 1306
Hildernisse, L W, 717
Hill, A B, 585
Hill, D F, 871
Hill, H E, 710
Hiller, B, 1128
Hinkle, L E, Jr, 580
Hoagland, H, 195
Hobson, L B, 952
Hoch, F F, 421
Hodges, R G, 268
Hodgson, C H, 1210
Hoffman, W S, *1157
Hogan, M J, 576
Hogan, R B, 1510
Holbrook, W P, 871
Holloway, O R, 1305
Holman, C W, 1026
Holman, E, 1120
Holmberg, G, 963
Holmes, H H, 715
Holten, C, 1525
Holzel, A, 1592
Holzman, D, *923
Homans, J, 191
Homburger, F, *892
Hoover, J E, *1094
Hoover, M J, Jr, 1127
Horn, H, 491, 574
Horne, H W, Jr, 1307
Horrigan, D, 954
Horvath, S M, *1562
Houck, C R, 869
Howard, E M, 346
Howard, J E, *1347
Howarth, V S, 425
Hubault, A, 1040
Huberman, J, 878
Huddleston, O L, 117
Hudson, G W, 1303
Huebner, R J, *609
Hughes, J P, 416
Hultberg, S, 961
Hultqvist, G, 873
Hummel, B, 73
Humphreys, G H, II, 1030
Hunt, H B, 871
Hunt, S R, 1593
Hunt, T F, 1121
Hunter, A R, 1129
Hunter, T H, *521
Hurley, V, 1502
Hussey, H H, 1212
Huston, R, 1125
Hutcheson, W L, *1269
Hutchings, L M, 793
Hutchins, S P R, 421
Hutton, S B, Jr, 794
Hyde, J S, 1202
Hyllestad, K, 1040

I

Ingalls, T H, 871
Ingebrigtsen, M, 953
Inglis, K, 786
Ingram, M D, Jr, 1303
Iob, V, 1511
Irey, N S, 192
Irvine, A R, *1423
Isaacs, J, *1246
Isbell, H, 710, 1124
Iversen, K, 1039
Ivy, A C, 780, 1301, *1147, *1155

J

Jackson, J J, 274
Jacobsen, A K F, 1313
Jacobson, L O, 205, 115
Jacobson, W E, 578
Jaller, J W, 312
James, G, *228
Jammet, M L, 718
Jamra, M A, 1040
Janovics, T, 1521
Janton, O H, 263
Jaques, L B, 1405
Jasper, J D, *845
Jay, G D, III, 788
Jebens, H, 1316
Jellison, W L, 1517
Jenkins, B J, *617
Jennes, S W, 577
Jensen, K A, 1315
Jensen, R A, 1031
Jern, H Z, 1206
Jersild, T, 351, 351, 1037, 1401
Jervell, O, 208
Jessup, J S, 1122
Jimenez-Diaz, C, 317, 130
Job, J C, 430
Jonsson, G, 1215, 1311
Johansen, F A, *985
Johnson, D A, 265
Johnson, H T, 1511
Johnson, W M, 412
Johnsson, S, 501
Johnston, W H, *977
Jondahl, W H, 869
Jones, A C, *994
Jones, B S, 1035
Jones, H B, 789
Jones, O R, 713
Jones, P F, 1107
Jones, R J, *299
Jones, T D, 422
de Jong, J G, 1586
Jonnesco, G, 964
Joseph, A T, 1407
Jouve, A, 965
Judson, G V, Jr, 1586
Judson, W E, *537
Julia, J F, 336
Junge, H, 879

K

Kahn, J R, 1513
Kalkoff, K W, 966
Kallin, A C, *82
Kalra, S L, 716
Kaminsky, A F, *101
Kammerling, F M, *12
Kamminga, C J, 349
Kaplan, A S, 1307
Kaplan, G, *1555
Kaplan, R, 1304
Kaplan, S R, 419
Kappert, A, 717
Kark, R M, 65
Karnell, J, 1215
Karon, I M, 1119
Kartun, P, 426
Kasdon, S C, *892
Kasper, R, *1259
Kastrup, H, 1131
Katz, E, 712
Katz, H L, 1031
Katz, L N, 202
Kaufman, R F, 870
Kaufmann, L A, 171
Kay, J H, 203, 794
Kaye, B B, *616
Kazanjian, V H, 1407
Keating, F R, Jr, 20
Keefer, C S, 870
Kehoe, J L, 712
Keibl, E, 276
Keitel, H G, 1110
Keith, H M, 1406
Kelly, F T, 1516
Kelly, M, 960
Kemp, A, 1038
Kempe, C H, *115
Kendall, E C, *1327
Kennaway, E L, 1119
Kennedy, C S, 957
Kennedy, F, 579
Kennedy, R B, 1120
Kent, L J, 871
Kernohan, J W, 711
Kerr, A, Jr, *306
Kerr, D E, 712
Keschner, H W, 794
Key, J A, 1407
Klaer, I, 1316
Kiefer, L D, *903
Kierland, R R, 1510
Kilbourne, E D, 489
Kinsell, L W, *617
Kiørboe, F, 351, 1401
Kipen, C S, 1208
Kippen, D D, 419
Kirby, W M M, *233
Kirsch, N, 65
Kirsner, J B, 419, 872
Kistin, A D, 1511
Kitchen, D K, 787
Kjaergaard, G, 11[illegible]3
Klar, E, 961
Klee, P, 427
Klein, H, 274
Kleinfelder, H, 1593
Kleinsorg, H, 273
Klingberg, W G, 31
Knauer, W J, 1122
Kneeland, Y, Jr, 1501
Kneisel, J J, 496
Knight, V, 575, 792
Knisely, M H, 1206
Knoepp, L F, 69
Knott, J R, 581
Knowelden, J, 585
Knudsen, A, 1523
Koch, F, 963
Koch, O, 208
Koff, R, *1259
Koffler, I, 1025
Kohl, D A, 1517
Kohls, G M, 1517
Koontz, A R, 261, 860
Koontz, E R, 1125
Kopetzky, S J, 1206
Kornblith, B A, 70
Kornetsky, C H, 710
Korns, R F, *228
Kosinski, A A, 121
Kositchek, R J, *820
Koszewski, B J, 1521
Kotcher, F, 1515
Kraabel, T O, 569
Kracke, R R, 1404
Krasno, L R, 1404
Kratzing, C C, 870
Kraus, S, 1586
Krauss, H, 10[illegible]7
Krayenbühl, H, 962
Kreitner, H, 1316
Kremer, V L, 790
Kreps, S I, *221
Kretschmer, H L, 120
Krewson, W F, 3d, *[illegible]
Kroath, F, 588
Kroger, W S, 570
Krohn, P L, 1214
Kroll, F W, 879
Kroneberg, G, 963
Krug, E S, 956
Krusen, F H, *727

Küntscher, 274
Kuhns, E, 1517
Kux, E, 1037
Kyger, E R, Jr 1022

L

Lacomme, M 588
Lagerlof, H, 1039
Lahey, F H, 795 1518
Lahne, B, 963
Lalanne, 800
Lamar, C P 1110
Lamb, J H 1407
Lamotte M 130 1515 1525
Lamotte Barillon S, 1315
Lamy, M 718
Landabure, P B, 350
Landtman, B, 1037
Landy, S, 787
Lane, C W *305 *1501
Lange, J, 208
Lange K 315
Langohr, J L 953
La Place, L B 1406
Laporte, A, 1595
Laroche, G 1523
Larson L W, 780
Larsson L F 961
Lasch F, 503 1522
Laskin S 189
Lasser, R P 710
Laszlo, D, 415
Latner A L, 1592
Laurell, G 499
Laval, J, 711
Lawler, R H *844
Lawrason, F D, 1123
Lawrence C H, *1162
Lawrence, J H, 787
Lawson H A, 582
Leadbetter W F, 794
Leake, C D, 949
Leake, J P, 259
Leary, T, 1119
LeBolloch, 1525
Lechevalier, H, 712
Leeper, R W 489
Leguay, A, 1040
Lehman, A J, *108
Lehman E P, 497
Leibowitz H *990
Leikin, S, 1515
Leiner G C, 338
Leinfelder, P J, *919
Leininger, C R *8
Lemere, F, 423
Lempert, J, 495
Lenegre J 878, 965
Lennette, E H, 1123
Leonard, A R, 1028
Leonard, M H, 1213
Leonard, W A 782
Lepper, M, *1540
Lequime, J, 717
Lerman, J, 789
Lerner, S, 964
Leroy, D, 800
LeRoy, G V, *1424
Lesses M F *16
Lester C W, 1029
Levaditi C, 276
Levens H F 1312
Lever, W F 489
Levin, B, 715
Levin, M L, 782
Levine, S A, 876 1202
Levinson, S O, *88
Levitt, M F 1588
Levy, A, *620
Levy, H B, 1126
Levy, R W, 494
Levy Solal F, 277
Lewis, L A, 576
Lewis R A 949
Ley, F 1314
Lhermitte F, 880
Li n, C, 350 718
Lichtman, H 1308
Lincoln, M 582
Lind, J, 1039
Lindan O 1035
Lindblom, K 873
Linder, F, 1038
Lindgren F J 789
Link, V B, 245 *375
Lipman, B L *1090
Little, S C, 494
Littman A, 1304
Littmann D, 494 1125
Lockwood J S, 1208
Lodoen, O, 426
Lotsch A, 276
Loewe, L, 710
Logan, G B 208
Logue B, *757
Lombard C F, 1404
London, F 578
Long, C N H, 781
Long, P H, 586 1207
Long, R S 871
Longmire W P, Jr, 1207
Loogen, F, 427
Loos J W 429
Lorber, J, 1519
Losner, S 336
Lowe C U 1406
Lowen, H J, *21
Lowenthal, L J A, 1311
Luetscher, J A Jr, 790
Lundstrom R, 501
Lunn, V 797
Lynch J *921
Lynn R B 199 500

M

Mabon, R F, 711
McCall, F. C 345
McCallen A M, 791
MacCallum, F O 585
McCallum, M, *22
McClaughry, R I, 263
McComb, J A, 1516
McConahey, W M 265
McCormick, F J, *151
McCormick R V *1153
McCullough N B, *621
McCune R M, Jr 1029
McDermott, W, 575 792
McDonald, J R, 267 121, 776, 1124
McDougall H A, 951
McLachern D *1353
McFadden F R 712
Macfarlane, D W, *118
Macfarlane W V 199
MacGillivray I, 346
McGrath, A K, Jr, *1
McGraw, A B 788
McIlvanie, S K, 1032
Mack, I, 262
McKeen, C L, *1069
McKhann, C F, 1103
MacLachlan, E 1401
McLachlan I M, 199
McLardy, T, 72
McNicholl B 715
McNulty, P H, *841
Madden, J F, 1119
Madsen S T, 800
Magnusson, J H 199
Maguire J B, 707
Mahon, H W 207
Majer, E H, 503
Malhotra S L, 1036
Mallet-Guy, P, 348 1038 1314
Mallory, G K, 1211
Maluf, N S R, 1029
Mandel, P, 801
Mandl, F, 1216
Manning I J, 578
Marais J L B, 1311
Maral R, 1215, 1217
Marañon, G, 1594
Marassi, J, 1314
March H C, 1302
Marchand, J F, *107
Marchese, G, 1131
Marcozzi G, 73
Marcus, R, 1035
Margulis, R R, 709, 788
Marie, J, 965
Marinacci A A, 417
Marinaccio G 429
Markow H *990
Marks, E K, 205
Marks, L J, 953
Marquezy, R A, 965
Marshall, H C, Jr *900
Marshall, S F, 488
Marti Granell, A 1312
Martin C L 496
Martin, J, *1124
Martin, L, 872
Martin, P 500
Martland H S, 1203
Martland H S, Jr, 1203
Marvin, J F 1517
Mascher, W, 1130
Mason, H L *1341
Masse N, 1523
Massell, B F, 205 422 *1335
Master, A M 343 491 571 860
Mathers N F, 872
Mathewson C, Jr, 1213
Mathisen, A K 262
Mathisen, H S 549
Matis P, 1314
Mattei, C, 276
Matthews J H, *754
Mattson, S B 1130
May, S H 1402
Mayer, M, 276
Mayerhofer E 1037
Mayo C W, 269 *1081
Mazar, S A, *1369
Mazars, G, 800
Mazars, Y, 800
Mead, S, *478
Medina, I, 499
Meiklejohn, G, *1156
Meiling, R L, *840
Meissner, W A, 488
Melick D W 714
Mellinkoff S M 578
Melnick, J. L, 787 1307
Melrose, A G, 1310
Mendelson, R W, 795
Menduke, H, *1562
Menendez, F J, 492
Menof, P 1521
Merkow, W *615
Merrill, J P 1205
Merliss, R *163
Messinger, W J, 1102
Metianu, C 962
Metzger, J T, 1107
Meyer, K F *982
Meyers J 578
Meyers, R, 581
Meyler L 1038 1522
Mezzetti-Panozzi I 502
Michael S R *221
Michaelis, O P 348
Middleton, W S, 951
Mikal S 1032
Milanes F 269
Miller, A A, 790
Miller, C D, 206
Miller, C O 1031
Miller, H, 575
Miller, I B, 1106
Miller, J B 951 1031
Miller R, *914
Miller W J 1105
Mills, S D 575
Mink, F, 271
Mitchell G H 1119
Moehlig R C, 267
Mori F 272
Moersch F P *1111
Moeschlin S, 1521
Mohs F F, 1119
Molhuysen, J A 1108
Molina L 501
Mollaret P, 1133
Mollin, D L, 585
Molomut, N, *897
Molony, C J, 122
Montgomery, B M 958
Moore, C V, *1081
Moore, F D, 953
Moore, G F, 1517
Moore, R C, 871
Moragues, V 1508
Morel, M, 1039
Morissey, P D, 871
Morris R S Jr *1058
Morris, W, 262
Morrison, L M 262
Morrissey, D M 1510
Morse R A, 958
deMorsier, G, 351
Morton, J H, 1026
Morton T V, Jr 197
Mosbech, J, 1133
Moseley, V, 958
Mossman, F D, 67
Motulsky, A G 201
Moulder, P V, *1000
Mount, L A, 1306
Mowat, D, 1121
Moyes, F N, 716
Mueller, J F, 951
Munck J, 351
Murphy, B W 797
Murphy, J D, 1125
Murphy R A, Jr 121
Murphy, R P, *841
Murphy, T F, 336
Musselman A D, 1509
Muth, H, 1109
Myers G B 1511
Myers, L, 871

N

Nachtwey R A 1210
Nadler, C S 119
Naegele, C F, *37
Naffziger, H C 1120
Nagy C 877
Nardin, S, 716
Nareff, M J 1516
Nassi L 350
Nataro M, *12 1032
Nathanson, L, 875
Nathanson M H 575
Neefe, J R 1205
Neel, J, 878
Nelson, F C, 949
Nelson, J N, *439
Nelson, J T, *448
Netto, A W 878
Neubuerger K T 1302
Neupert, C N *1537
Newton G W *30
Nichol E S 583
Nichols, D R, 495
Nicholson, F P 1210
Nicholson, M M, *1538
Niels, R A J 1210
Nielsen, A L, 74
Nielsen, J C 1316
Nielsen J M 788
Noble, T B, Jr, 790
Northrip R R 788
Norval M A, 1406
Nory, J, 126
Novak, E, 116
Nuzum, F R, 115
Nylius G, 1037

O

Oberndorf C P 1212
Obrador, S, 1311
Ochsner, A 203, 794 *831
O Connor, M H 72
O Conor V J 1502
Odell, R T, 1107
O'Donnell, W M 871
Ogilvie A G, 500
Ogryzlo M A, *1239
Olansky, S, 1510
O Leary, P A, 1510
Oliver, L C 73
Oliver-Pascual E 801
Olivier, C 961
Olovson, T, 193
Olson, J A, 709
Olson, R O, 581
Ondruf W 272
O'Neill, T J E, *1019
Oppenheim, M 1132
Oram, V 1591
Orator, V 966
Ortmayer, M, 341
Ostertag, M, 801
Otto de Hoogh, F 121
Ott H, 271
Oury, P, 350
Overbeck G A 1522

P

Packer, A D 790
Packham E A 118
Pahlsson, N F, 129
Page L, 1590
Page F W, 1518
Paillas, J E 588
Palchanis W, 1127
Palmer, D M, 337
Palmer, R S, *295
Palmer, W L, 119 872 *900
Palumbo, L T 1306
Paolucci R, 1305
Papen, G W, 1032
Pardo, O A, 1510
Pardo-Castello, V, 1510
Paris P, 126
Pariser, H, 1119
Park D D, 1283
Parker J M, 1125
Parker M L, *1091
Parks A, *1136
Parrillo, O J, *747
Parrott, R H, 1588
Parsonnet V 1102
Parsons R, Jr, 197
Paschen H W, 719
Pasqualini R Q, 129
Passow A, 128
Paszkowski J 961
Patrikios J S, 338
Paul, J R, 797
Payne, F H, 199 110
Payne T P B, 191
Pean, V, 879
Pearson O H, *1349
Pearson S C, *22
Peck, M E, 270
Pedrosa J M 1312
Peers, J H, 336
Peirce, C B, 1517
Pelikan, F W, *448
Pelner L, 412
Penning, H L, 341
Perelras, R, 272 1026
Pereira G A 580
Perlmutter, H M, 340
Perlow S *1257
Perry, S M, *707
Perry W F 872
Persky, L 1516
Petersen, E S *621
Petersen, H, 503
Peterson, L H, 1515
Pfeiffer, J B, Jr, 1511
Pfuetze K H 65
Phillips A M, 582
Pickard, W H, Jr *997
Pickrell K L, 423, 1107
Pierard B E 207
Piersol G M *1562
Pignard P 277
Pijoan, M J 1103
Pillsbury, S G *22
Pines K L 580
Pitchford C A, 872
Poate H R G, 716
Polachek A A 338
Polani P E, 272
Pollack, A A, 580
Polley, H F, *1327
Polson R A, 418
Pons, E R, 273
Pons E R, Jr, 273
Poppen J L *1432
Popper, H, 1118
Pordy, L, 343
Porge J F, 275
Porsaa, K, 877
Porter, M, 339
Porter, R R, *749
Porter, W B, *749
Portis S A, *1162
Portmann, U V, *513
Post C F, 1126
Postell T, 718
Postlethwait, R W 206
Potsubay S F, 1407
Potter F A, *537
Potts W J, *8
Poulsen O, 319
Power M H 205 *1107 *1341
Pratt, P T 264 1210
Pridgen, J E 269
Prigal, S J *897, 1585
Prior, J A, 1127
Proctor, W H Jr *818
Proetz, A W 791
Pugh, L, *230
Pugh R E, Jr 197
Pulitano, E, 1523
Pytek L J 795

Q

Quick A J 1591
Quimby F H 417

R

Rabinovitch, R, *1...
Rabwin M H *16 *826
Ragan, C 715
Ramirez, F 273
Ramirez O, 1308
Ramsey, R H, 1107
Randall H T, 1308
Randall, L M, 809
Randolph, T G, 1027
Rasmussen, O, 719
Ratcliffe H E, 1309
Ratner B, 951, 1031
Ratzenhofer, M, 589
Ravault, P, 73
Ravdin, I S *979 1511
Raven, R W, 498
Ravitch M M, 1029
Raymon F *1447
Raynaud R, 587
Reale A, 717
Reardon H S, 792
Rebocho P R 502
Recalde Cuestas, J C 1131
Rechtschaffen, J S *237
Reeb, B B, 871
Reeder, R C 339
Rees R J W, 1108
Regan F D, *373
Reich S, *1154
Reiches A J, *305
Reimann, H A, *81
Rein C R, 787
Reinhold, J D L 715
Reisel J H 349
Reiss F, 879
Rellini, G, 718
Relman, A S, 1125
Resnick A 952
Retief P J M, 900
Reuling, J R, 1516
Rey C, 502
Reynafarje C, *1084
Reynolds L R, 1207
Reynolds R P, 957
Rich G J 1034
Richardson, S L, 579
Richmond A M, 715
Richmond J B, 1202 1208
Ricketts W E, 419 872
Ricklin, P, 1524
Ricordeau G, 1595
Riddell, L A 426
Rider, J A, 270
Rienhoff, W F, Jr 188
Riepenhoff J P, 337
Rigterink, G H 1110
Riisfeldt O, 349 349
Riishede J, 351
Riker, W L, *8
Riley E A, 1204
Ring J O 966
Rinker, J R, 1024
Ripstein C B 951
Riser, W H Jr 1101
Riva G, 128
Rivolie R 961
Rizzo N D 122
Roberts N J 1118
Robertson E 1592
Robertson K F R 586
Robertson J 1509
Robinson J W 577
Rockstroh C, 1314
Rodriguez Barrios R 427
Rodriguez Castells H 1595
Ronicke, G 963
Rørvik K 879

Rosgen, M , 1312
Roger, V N., 718
Rogers, H , *617
Roget, J , 1132
Rohr, J H , 871
Rohwer, S A *104
Rome S , *1259
Rook, G D., 266
Rooks R , 712
Root, H F , *86
Rose, H M., 1509
Rose, W M., 208
Rosen F L , *620
Rosenblatt, P , *213
Rosenfeld, S , 1404
Rosenfield, A B , 1125
Rosenthal, M , *1
Rosenthal, N *224
Rosenthal, S I , 413
Ross, J E , [illegible]
Ross, W L , 1208
Rossi E , 271
Roswit, B , *1557
Roth, O , 1588
Roth, R B , *601
Roualle, H L M , 1519
Rourke, M , 1406
Roy C A , *1372
Rubin E H , 1122
Rubin M , 1122
Rudler, J. C , 1132
Rudman, I , 1308
Rudner, H G , 269
Rudolph, C J , 1283
Ruedemann A D *517
Ruiz Sanchez, F 575
Rufavan J , *1065
Rush H A , *730, *1143
Ruskin H D , 1311
Rutsek H I *373
Russell L W , *19
Russell, M , *461, 1204
Rutenburg, A M , 793
Ryneatson, E H , *1167
Ryle G A , 1036

S

Sadove M S , *448 *1447
Saenger E L , 577
Salter L C , 1208
Saltzmann G F 1315
Saltzstein H C , *1436
Salvesen H A , 426
Salzman F A , 417
Sanderson K V , 58[illegible]
Sandler B P , *754
Sandweiss D J , *1436
Sangiovanni, A , 964
Sanz Ibanez, J 801
Sargent F , 271
Sarteschi, P 430
Sassi P , 1314
Saville S , 1311
Sayre, G P , *1141
Sborov V M , 709, 1203
Scarff J E 581
Schaaf R S , 1125
Schaar F E *1452
Schaefer, L *909
Schalm L , 1038
Scheinberg, S R *1456
Scherer J H , 345
Schiff B L *620
Schiff M , 1309
Schlesinger M J , 1516
Schlutz C , *88
Schmid H H , 589
Schmidt C , 417
Schmidt, F R , 264 *1560
Schmidt G W , 347
Schneider, R , 73
Schneiderbaur, A , 1525
Scholer G , 589
Schoenbach, E B , 586 *1538
Schonenberg, H 1313
Schrader, A , 277
Schrumpf, A 1039
Schullinger, R N , 339
Schulte, T L , 1207
Schulte, W , 501
Schwartz, S , 574
Schwartz, S O , 264, 419
Schwarz, E , 503
Schweinburg, F. B , 793
Schwellnus, M , 273
Scott, E M , 874
Scott, J K , 189
Scott N B , 952
Scott, R B , 203
Scott, T F. M , 263
Scott V , 952
Scott, W. W., 1207
Scribner, B. H., *1167
Sebok, I., 1409
Sedallian, P., 1215
Sedallian, S , 1215
Seedorff, H. H , 588
Seigneurin, R , 1132
Seiler, H H , 267
Selwyn, J G , 271
Seltzer, L B , *1573
Seneca, H , 418
Sengstaken, R W., 203
Servelle, M , 963
Seybold, W. D , 1124
Shaffer, J M , 709, 1203
Shambaugh, G. E , Jr., 265
Shapiro, D., *12
Shapiro, L , 412
Sharkey, T P , *914
Sharnoff, J G , *845
Sharp, E. A , 499
Sharp, G S , 497
Shaw, E W , 787
Shearer, A. R , 712
Shechter, F R , *100
Sheeran, A D , 713
Shelton, M , 1212
Sherwood, P M , 1304
Shiels, D O , 1311
Shindell, S , 70
Shmigelsky, I , 341
Shorr, E , *1549
Shumway, N P , 1513
Shure, N , 69
Shy, G M., *1353
Sicard, A , 502
Siegel, J. M , 65
Sigel, M M , 263
Sigurdsson, B., 1508
Sigurdsson, J H 1508
Sigurjonsson, J 1508
Sikes, C R , 873
Silbert, S *454
Silson, J E , 1509
Simeone, F A 1308
Simmons, E E 871
Simmons, E L 205
Simmons, G , 932
Simon, M A 1211
Simons, D J 494
Singer, E *819
Singer, K 204
Sirota, J H 263
Sisson, M A *997
Sjoberg, A 1205
Skeggs L T 1513
Skinner, A , 424
Skinner, D , 791
Sklar, L J , 1516
Slade, W R , 336
Slater, E C 876
Sloan, N R , 341
Slobodkin, M 875
Slocumb, C H , *1327
Smalldon, T R 1303
Smalley, R E , *439
Smetana, H F. 1305
Smith, A G , 957
Smith, B F , *1074
Smith, C. H , 337
Smith, D E *1084
Smith D T , 412 952
Smith, E , *213
Smith, F. H , 1591
Smith, H V , *92
Smith, J E , 201
Smith, L F , 490
Smith, S , III , 1207
Smith, T. R , 415
Smith, W. H , 709
Smithers, D W , 71
Smithwick, R H , 496 1027
Snavely, J. G , *226
Søbye, P., 351
Sønder, P., 1523
Soestmeyer, T , 587
Soffer, L J , 342, 1588
Sokhey, S S , 1214
Solis-Cohen, M , 1022
Solomon, H A , *221
Somerville, W., 876
Sorrel, A , 275
Sosman, M C , 68
Soule, E H , 575
Soulie, P., 963
Soulier, J P , 1524 1525
Spain, D M , 1402
Spencer, W. A , 713
Sperling, O., 423
Spies, T D , 269, 1036
Spooner, E T C , 877
Sprague R G , *1341
Spurr C L 417
Staffieri, J. J., 1131
Stahlie, T D , 1312
Staines E , 420
Starr, P , *1259
Steele C H , 68
Steele H H 419
Stefanini M , *1372
Steffensen E H , 709
Steiger, R , 1039
Steigmann, F 574, *1076
Stein, I., 707
Stein, L , *380
Steinbach, M M , 338, 344
Steinberg, I , 1026
Steinbrocker, O , 574
Steinmann, B., 1314
Steinmann J , 880
Stengel, E , 1520
Stensrud, N , 275
Stephens, C A L , Jr , 871
Stern, E S , 585
Stevens, G A , 1208
Stewart, C P , 877
Stewart, J. D , 1308
Stewart, J. M , 415
Stillians, A W , *743
Stimburis, F B , 860
Stirk E M , 207
Stobbaerts, F., 1040
Stoffel, E , 1595
Stokes, J , Jr., 709, 709, 1203
Stokes T. L , 1037
Stone, R E., 1036
Story R D., *86
Stott F D , 1128
Strahberger, E , 1525
Stransky E. 1129
Strobel, R J , 1205
Strombeck J P , 275
Stroud, W. D , 1406
Stubbs J B , 1032
Stupenengo, R H , 1595
Sturgis, G P 205
Sullivan, J. M , 1518
Sutton, G C , 717
Sutton, J. B , 494
Svien, H J , 711
Svith, N , 430
Swann W C , 583
Swanson C A , 65
Sweany H C., 496
Sweeney D B , 581
Swieringa J 420
Swyer A J , 415
Swyer G I M 1593
Sykes C *1069
Szanto, P B , 1118
Szilagyi N , 711

T

Tabor, H 413
Taggart S R , 1510
Tako J 1524
Talaat S , 877
Tamalet, J 588
Taquini A C , 1131
Taran, L M , 711
Tarr, A , 1039
Tatlow W F T , 584
Tatum, E L 571
Taussig H B , 491
Taylor, B. E , 580
Taylor G W 1589
Taylor H M , 870
Taylor L M 1128
Taylor R R 490
Taylor S G III *1058
Te Linde R W , 203
Teperson, H I , 707
Terzioglu M , 782
Thalmann, W G , *1156
Thayer, J E , 1126
Thelen, H M , *384
Therkelsen, F., 1040
Thomas, B A , 498
Thomas, E W , 787
Thomas, E W P , 1520
Thompson, A E , 872
Thompson, A G , 954
Thompson, A W. S , 960
Thompson, S A , *1077
Thorkelsson, J , 1508
Thorn G W , 1205
Thygeson, P., 576, *1544
Tierkel E S , 1589
Tischer E P. 345
Tober, J 575
Tobias, J B , *1432
Tommasino, P O , 1131
Tompkins, P , 261
Torrens, J. K , 875
Tosatti E , 1305
Touraine, A., 350
Traeger, C H , 949
Traeger, J., 73, 1215
Trafton, M Z , 1516
Traut, H F , 955
Tremolieres, J., 1523
Tristani, M , 276
Troell, L , 800
Troup, P., *914
Trube, H J , 799
Ts'ao, Y, P., 798
Tuggle, H G , 1589
Turnbull, J. A., 874
Turner, H B , 869
Turner, J. P , *1560
Turner, R , 1310
Twaddell, D N., 577
Tzanck, A., 1040, 1524

U

Ullerich, K , 587
Ullman, E V , 67
Ullmann, T. D , 347
Ungar, H , 347
Unger, L , 1502
Unna, K R , *448
Ureles, A. L , *16
Urquia, D. A., 1039
Urquiza, P , 1314

V

Vaccarezza, R. F , 350, 1595
Vaichulis, J. A , 1304
Vaisman, A , 276
Valentin, H , 501
Valle, G , 428
Vallery-Radot, P , 879
Van Allen, W. W , 793
van Assen, F. J J , 1313
van Bracht, I., 500
van der Hart, M , 349
Van Kirk, H C , *914
van Loghem, J. J , Jr , 349
van Rijssel, T. G , 1038
van Someren, R K A , 586
van Wijk, T. W., 275
Vars, H M , 1511
Vaz Cerqueira, R., 502
Veggetti, G , 718
Verbeek, F. A , 501
Verney, E L , 874
Versakos, M , 710
Vest, W. E , *1232
Vetter, R , 1037
Viallat, F , 1132
Vidal, I E , 336
Videbaek, A , 719, 1133, 1133
Vignec, A J , 336
Vignes, H , 201
Villarreal, R , 276
Vilter, R W., 954
Vincente, C , 1129
Voegtlin, W L , 423
Vogelius, H , 876, 877
Vogl, A , 334
Volk, B. W , 336
Vollum, R L , *92
de Vos, J F , 1038
Voskamp, M (Mrs), 486
deVries L A., 1408

W

Wadley, S L , 1589
Waenke, R D , 1511
Wagner, D. H , 340
Wagner, F F., 799
Wagner, H , 719
Wagner, J A , 1406
Wahren, H , 1311
Waksman, S A , 712
Wainerdi, H. R , *619
Waldman, S , 412
Waldstein, S S , 1118
Walenz, H., 1409
Wammock, V. S , 493
Ward, J. C , *108
Ware, G C , 1521
Warner, L , 1206
Warren, J E , 205, *1335
Warren, R , 494
Warth, P. T , 1207
Wasserman, L R , 787
Waterhouse, P D , 1035
Watson J , 1308
de Watteville, H , 1317
Wattles, M , 1122
Waugh, W. F., *842
Weaver, J. D., 1026
Webb C H 951, 11
Wegelius, C , 1039
Weinberg, J , 270, 339
Weiner, D , 345
Weinstein, L , 714 1407
Weis, E , 579
Weise, H., 277
Weiss, G., 949
Weiss G N., 794
Weissbecker L , 15[illegible]
Welker, E L , *1395
Wells, W., *303
Welti, J J , 350
Werko, L , 1039
Werner, A , 274
Werner, B , 499
Werner, C A , 792
Werner, S C , 417
Wertheimer, P , 798
West J W , *844
Westphal, A , 587, 1409
Wetzler, S H , *615
White, F. C , 710
White, H C , 1214
White, J. C , 585
White, R. B., 1209
Whitlock, C M , Jr., 1203
Whittle, E G., 584
Wilce, J W., 1127
Wilcox, P H , 1036
Wild, J B , 271
Wilde, N J , 423, 1407
Wilder, R. M , *1234
Wile, S A , 204
Wilkins, F. B , 339
Wilkinson, A W., 877
Wilkinson, J. D., 1126
Willebrands, A F , 349
Willemijns, F. A., 797
Williams, B , 1510
Williams, H H , *914
Williams, J W. 333
Williamson, C. R , 1030
Wilmot, A J , 586
Wilson, C M , 334
Wilson, D R , 954
Wilson, G B , 262
Wilson, J L , 792
Wingard, C , 1028
Winkelstein, A , 1501
Winkenwerder, W L , *1347
Winkler, W , 1522, 1522
Winston, B J , 579
Winther, K , 966
Wiprud, T., *835
Wissler, H , 1315
deWit J. C , 879
Witte, S , 1315
Wolf, A M , *88
Wolf, J , 425
Wolf, S , 580
Wolfe, S G , 951
Wolff, H G , 1514
Wolff, W I , *738
Wollheim, E 1593
Wolman, B , 1592
Wong, A. S., 1118
Wood, F. W., 421
Wood, J R , *606
Woodcock, H M , 1208
Woodhall, J P., *1227
Woolsey, R D , 1032
Worrall, J A , *1156
Wright, A W., *228 *1067
Wright, L T , *21
Wright, R D , 1210
Wroblewski, F., 1402
Wunsch, R E , 1511
Wyatt T C , *304

X

Y

Yardumian, E E , 871
Yates W. K , 583
Yeo, R M , 717
Youmans J B , *34, *307 *386
Young L E , 418
Yu, P N G , 415
Yu T F , 786

Z

Zannini, G , 1314
Zannos L , *1372
erbini, E J , 1132
llacus, H 1521
merman I M , 340
n, I
wicz
, I